

COLOR GUIDE

Adobe Illustrator 88™

V 1.9.3

Color Guide



Adobe Illustrator 88™

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The process color reproduction of the Adobe Illustrator 88 dialog box on page 10, chapter 2, is intended for program reference only. Process color reproduction may not match PANTONE®-identified solid color standards. Refer to current PANTONE Color Publications for the accurate colors.

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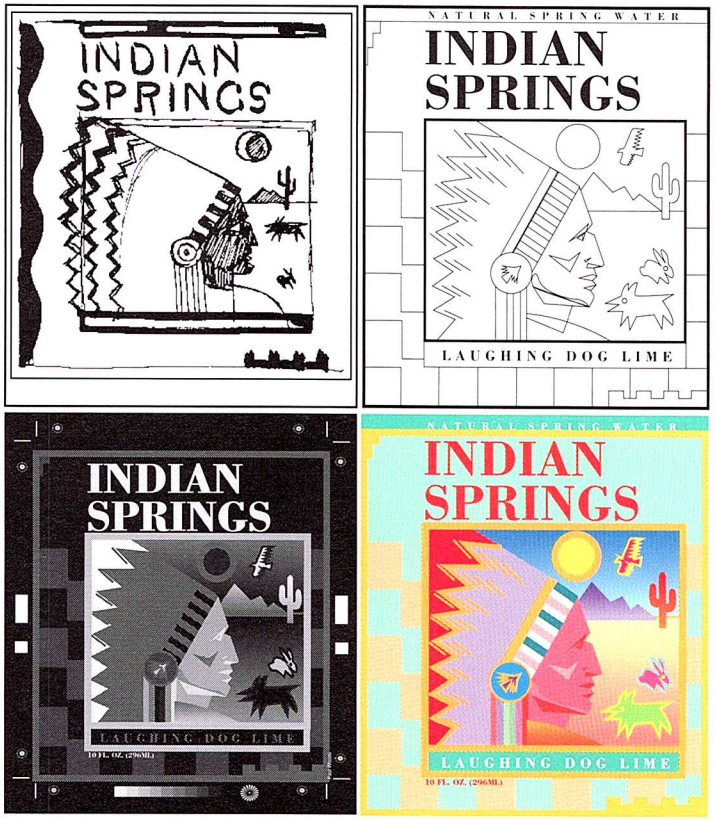
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Introduction

Adobe Illustrator 88™ lets you create color illustrations using the four process colors (cyan, magenta, yellow, and black), the PANTONE MATCHING SYSTEM, or other ink colors that you create. Using the Adobe Separator utility, included with the program, you can print these illustrations as negatives that an offset printer can use to print color reproductions of your work.



If you are planning to do extensive work with color, you will probably want to use a color monitor. You can, however, produce color images on a black-and-white system, although you won't be able to preview your work in color on the screen. The colors you assign will instead appear in appropriate shades of gray, and you will need to do all of your proofing on a color printer. (If you have a color monitor, you will want to adjust it so that the colors on the display approximate those in your printed output as closely as possible. To help you get the best results, Adobe Illustrator 88

lets you control the appearance of your artwork on a color monitor without adjusting the device.)

This manual tells you how to use the color features of the Adobe Illustrator 88 program, including how to use the Adobe Separator utility. Section 1 describes how to adjust the color display, assign colors in the Adobe Illustrator 88 program, and print color comps (comprehensive drafts). Section 2 tells how to use the Adobe Separator program to produce color-separation negatives.

For a list of the equipment needed to run Adobe Illustrator 88, see "Before You Begin" in the *Adobe Illustrator 88 User Guide*. For information on using the other features of Adobe Illustrator 88, see the *Adobe Illustrator 88 User Guide* or the *Adobe Illustrator 88 Tutorial*.

Because of the complexity of offset printing, a description of the process of color printing is beyond the scope of this manual. If you are new to printing, consult one of the works listed in the bibliography at the end of this manual before you attempt to work with color. These are good sources of basic information about design, production, and printing.

This book has been written with the expert in mind. If you are new to color printing or have never worked with a professional color-separation house before, it is suggested that you work closely with your local print shop, consulting them before and after you begin each job. Do not attempt any color printing jobs until you are thoroughly familiar with the basics of printing.

Section 1: *Using Color with the Adobe Illustrator 88 Program*

Chapter 1: *Working with a Color Monitor*

If you are using a color monitor, you will want the appearance of documents on your monitor to match the printed output as closely as possible. Because of differences in monitors, factory settings, and other factors, no two monitors are exactly alike. Similarly, different print shops use different brands of inks, which will also affect the appearance of your artwork when it is printed. With the Adobe Illustrator 88 program, you can adjust the video display from within the program without changing the internal settings of the monitor.

The color preview feature works only when you are in Adobe Illustrator 88. When you paste Adobe Illustrator 88 files into documents produced with a page layout program, the images appear in black and white.

To adjust your color display, you should have a sample color bar from your print shop with separate squares showing the four process colors, plus the following combinations: magenta/yellow, cyan/yellow, cyan/magenta, and cyan/magenta/yellow. You should also have a sample of the paper on which you intend to print your job.



progressive color bar

Most four-color print shops print these color combinations in bars at the top of each sheet. Before a job is shipped, the color bars are trimmed off and thrown away. If a color bar sample is unavailable, you can use the sample color bar above, although the color values of this bar may not match your printer's ink colors exactly.

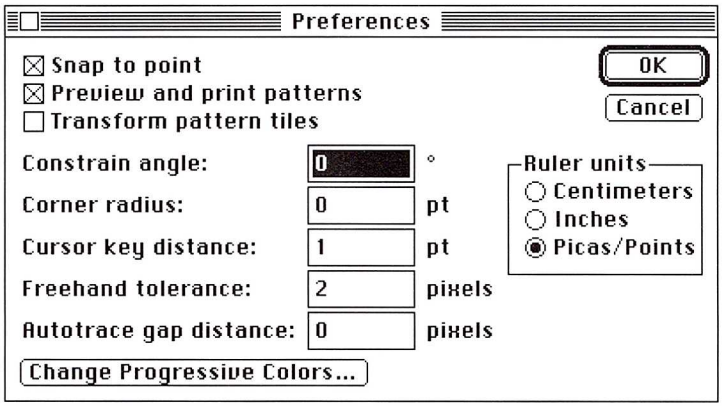
How closely you can match the video display to a color sample depends on the number of colors you have chosen in the Control Panel. Adobe Illustrator 88 displays color when the Control Panel is set for 16 or 256 colors. For the best results, set the monitor characteristics in the Control Panel to 256 colors.

Do not undertake the following procedure until your monitor has been on for at least 20 minutes. Before you do anything else, follow the instructions for adjusting the convergence in the manual provided with the monitor.

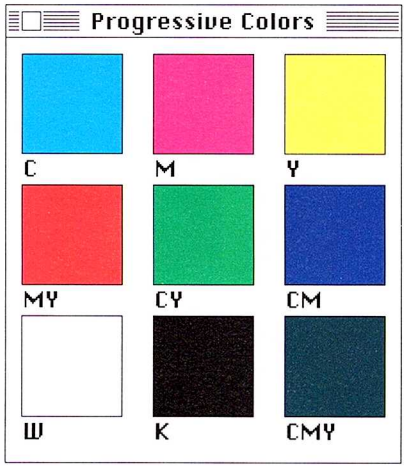
To adjust your color display:

1. Start the Adobe Illustrator 88 program and open a document.
2. Choose Preferences from the Edit menu.

 The Preferences dialog box appears.



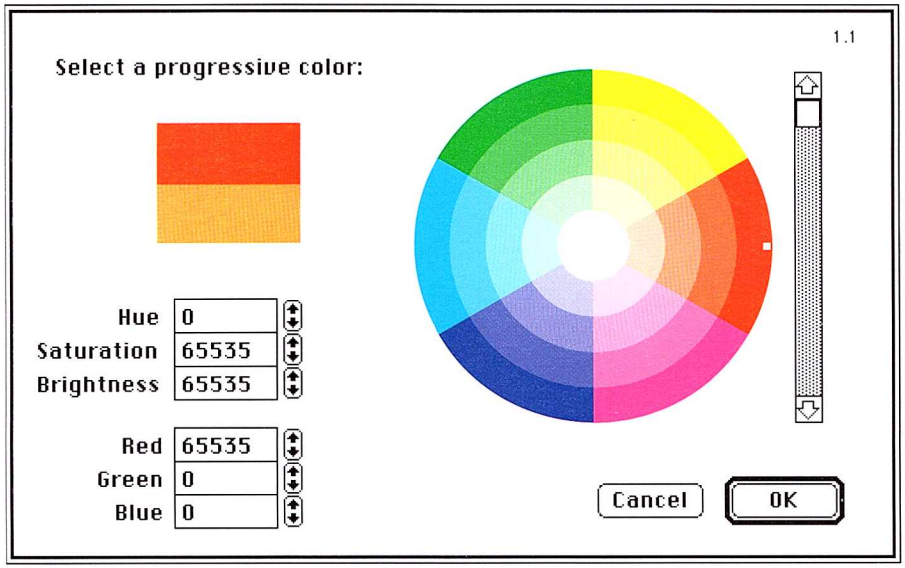
3. Click Change Progressive Colors. The Progressive Colors dialog box appears, showing the four process colors, plus white and the various combinations of cyan, magenta, and yellow. These are called progressive colors because they show the appearance of progressive combinations of ink.



4. Compare the on-screen color chart to the printed color bar or other color samples. If the colors displayed on the monitor closely match the colors on the printed sample, then no adjustment is necessary. If the colors do not

match, proceed with the following instructions. To match the paper color on which your job is printing, adjust the color of the box labeled "W."

5. Click on the box that contains the color, or color combination, that needs adjusting. A color wheel appears.



6. Compare the printed sample to the screen sample in the upper left of the dialog box.

 You can adjust the color in any of the following ways:

 - Move the white color-adjustment dot that appears inside the color wheel. This changes the hue and saturation. It does not affect the selected color's brightness.
 - Click on the arrows or move the box in the scroll bar to the right of the color wheel. This changes the selected color's brightness. It does not affect hue or saturation.
 - Click on the arrows next to the Hue, Saturation, and Brightness fields or the Red, Green, and Blue color fields, or enter specific values between 0 and 65535 in these fields.

7. When the color of the screen sample matches the printed sample, click OK.

NOTE: Video monitors use red, green, and blue, instead of cyan, magenta, and yellow, to create colors. Red, green, and blue are called the *additive primary colors* and are used to create colors with direct light sources, such as televisions and monitors. Cyan, magenta, and yellow are called the *subtractive primary colors* and are used to create colors in printed material. For more information on this, see the bibliography and glossary at the end of this manual.

Although changing the color display can help you get a better idea of how your finished product will look, the differences between the printing process and the video display are extensive. A perfect match is almost impossible, although you can come close. Never use the video display as a substitute for color comps and proofs. (For information on color comps, see Chapter 4, "Printing Color Comps.")

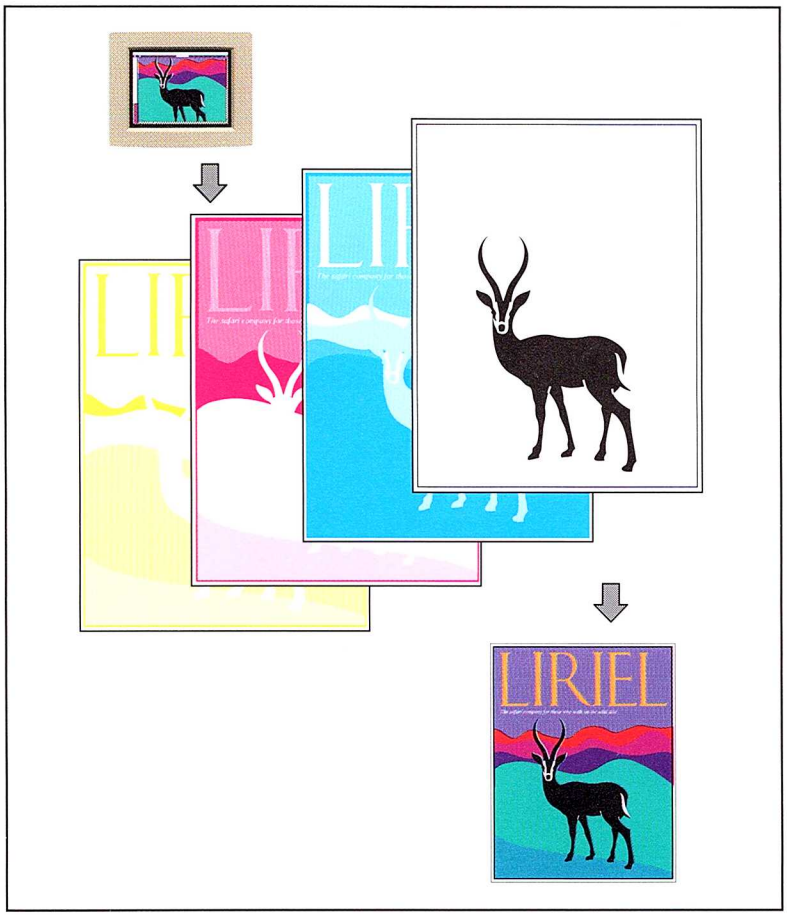
To preview a color illustration on your monitor, simply choose Preview Illustration from the View menu.

TIP: As is the case with other programs, the Adobe Illustrator 88 program works much faster when the color is turned off and the monitor is set for two levels of gray. Colors can still be assigned to objects, however. To save drawing time, keep the color turned off in your computer until you are ready to preview your work.

Chapter 2: *Using the Adobe Illustrator 88 Program to Assign Colors*

With the Adobe Illustrator 88 program, you can assign color values to objects either as you draw them or after you have finished with your artwork. There are two basic ways to assign colors in Adobe Illustrator 88: using process colors or using custom colors. Although process and custom colors are sometimes used together, you will usually choose one or the other.

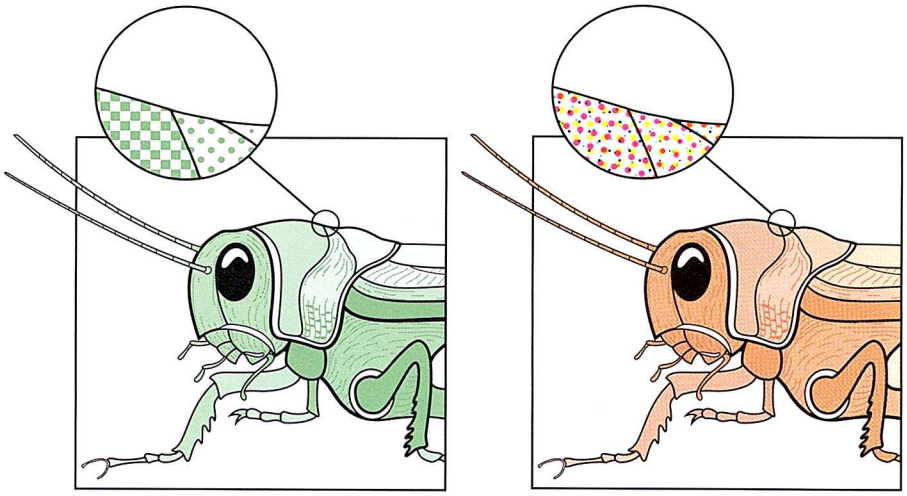
Using the process color method, you assign percentages of the four process colors—cyan, magenta, yellow, and black—to objects in your illustration. Once you have proofed the color values, you then use the Adobe Separator program to print four color-separation negatives, one for each process color. (For information on color comps, see Chapter 4, "Printing Color Comps.") The four colors are then printed using semitransparent inks that combine to produce a full range of colors.



Using the custom color method, you assign a specific ink color to an object or objects in your illustration. With Adobe Illustrator 88, you can choose PANTONE MATCHING SYSTEM Colors, or you can create your own colors and add them to the custom color list. After proofing the illustration, you then use the Adobe Separator utility to create one negative for each color used in the image. Custom colors are printed in opaque inks that usually do not blend well when overprinted.

Custom color is also referred to as *spot color* because it is often printed in small areas on a page to highlight information or provide accent color. The green line at the top of this page is an example of spot color.

The illustration shown here contains examples of both techniques. The grasshopper on the right was printed using the four process colors, while the grasshopper on the left was printed using only black and a PANTONE Color. A magnification of a section of the illustration on the right clearly shows the familiar "rosette" dot pattern of four-color printing. A magnification of a section of the illustration on the left shows only green dots and black lines. There is no rosette because only the printing ink in the PANTONE Color is used to create the various shades of green.



To decide which process to use, consider how many colors, including black, you want to have in your document. Your goal should be to produce as few negatives as possible. Thus, if your document uses two colors, black and green, it makes sense to use custom color so that you need only two negatives. If you were to use process colors, at least three negatives (black, cyan, and yellow) would be necessary to produce similar results. On the other hand, if you have 32 different colors in your illustration, you will want to use the four-color process so that you can work with 4 negatives instead of 32.

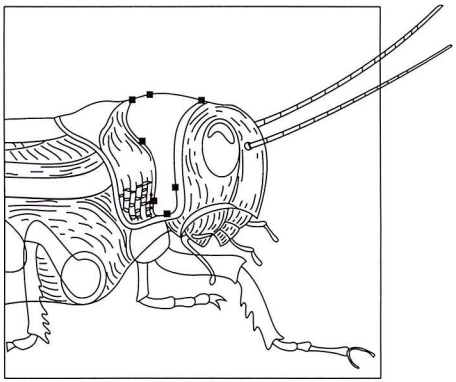
Using the four-color process

To assign colors that will be printed using the four-color process, you indicate a percentage for each of the process colors—cyan, magenta, yellow, and black. With these four colors it is possible to duplicate a wide range of colors.

To help you find the proper percentages for the colors you want, color tint charts have been provided in the back section. More-complete tint charts are available from graphic arts supply stores. Before you begin this procedure, determine the color you want assigned to the selected object. Note the screen tint percentages of each process color.

To assign colors using the four-color process:

1. Select the object to be colored.



2. Choose Paint from the Style menu.

 The Paint dialog box appears.

 In the upper right corner of the Fill option group is the color preview box. If you have a color monitor, this box shows the current color value you have chosen. If you have a black-and-white monitor, the color appears as an appropriate shade of grey. Changes made to the color are displayed immediately in this box. The color preview box appears in both the Fill and Stroke option groups whenever the White, Black, Process Color, Custom Color, or Pattern options are chosen.

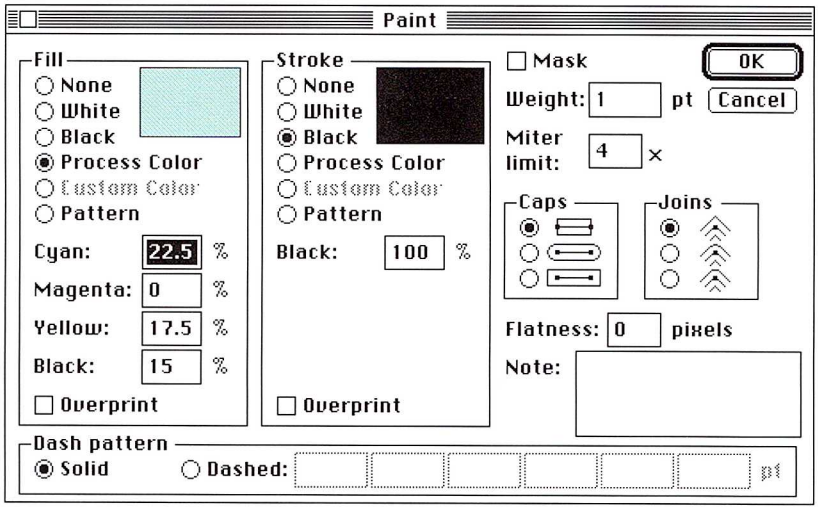
3. Click on Process Color in the Fill or Stroke option group.

 Four fields appear, one for each of the four process colors. The Cyan field is highlighted.

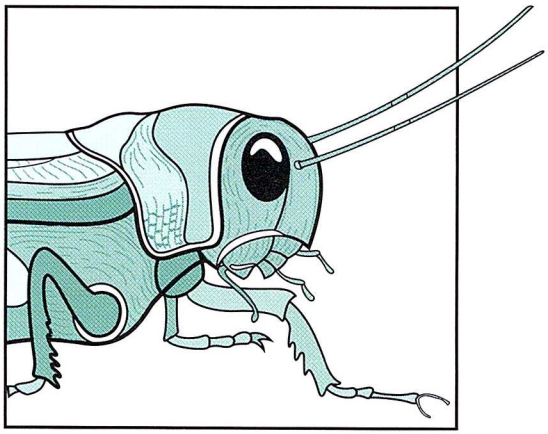
4. Enter the percentage of cyan to be used in the selected object.

5. Press the Tab key. The Magenta field is highlighted.

6. Enter the percentage of magenta to be used in the selected object.
7. Press the Tab key. The Yellow field is highlighted
8. Enter the percentage of yellow to be used in the selected object.
9. Press the Tab key once more. The Black field is highlighted.
10. Enter the percentage of black to be used in the selected object.



11. If you are using a color monitor, check the color preview box to see that the color displayed approximates your choice.
12. When you have assigned the desired color values, click OK.



TIP: If your four-color illustration contains large black areas, you can make the blacks appear much darker by adding 15 to 30 percent tints of cyan, magenta, and yellow to the black (check with your printer on the exact percentages you should use).

Using custom color

The Adobe Illustrator 88 program lets you use custom colors in one of two ways: using the PANTONE MATCHING SYSTEM Colors or using colors that you have created. The most common method of choosing custom colors is the PANTONE MATCHING SYSTEM, developed by Pantone, Inc. of New Jersey. There are more than 700 PANTONE Colors, plus a few nonstandard colors, such as fluorescent and metallic color inks. When you specify a color using the PANTONE MATCHING SYSTEM, the print shop matches it using the ink formula supplied by Pantone, Inc.

Besides using the PANTONE Color inks and the four process-color inks, you can also create your own ink colors and display them on your monitor. You will have to work with your printer very closely on this, but Adobe Illustrator 88 lets you create an approximate screen representation for a wide range of colors.

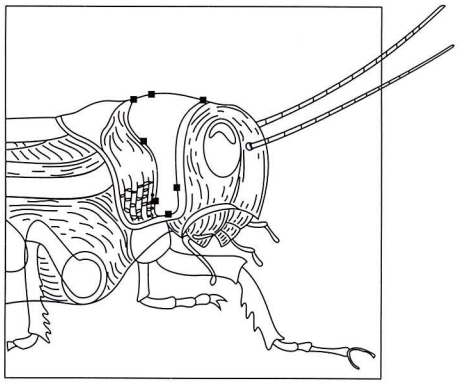
Using the PANTONE MATCHING SYSTEM

The Adobe Illustrator 88 program supports more than 700 printing inks in PANTONE Colors. Screen representations of these colors are built into the program. To use this feature, first determine the ink color you want, using either a *PANTONE Color Formula Guide 747XR* or an ink chart obtained from your printer. PANTONE Books are available from printers and graphic art supply houses.

To use the PANTONE MATCHING SYSTEM, you must have one of the PANTONE Color documents open. There are two PANTONE Documents, one for coated stock and one for uncoated stock. Which one you should use depends on the paper on which you plan to print. (Your print shop will be able to tell you whether your paper is coated or uncoated.) Do not use the PANTONE Documents for illustrations. If you accidentally use one of the PANTONE Documents for your illustration, either choose Select All from the Edit menu and then cut and paste your work to a blank document, or choose Save As and save the file under a different name.

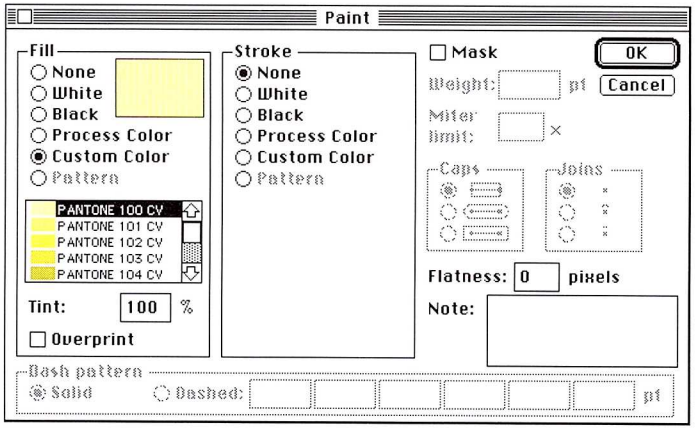
To assign a PANTONE MATCHING SYSTEM Color:

1. Open the PANTONE Color document that matches your paper type (coated, or uncoated).
2. Open the document to which you wish to add PANTONE Color or, if the document is already open, choose it from the Window menu.
3. Select the object to be colored.



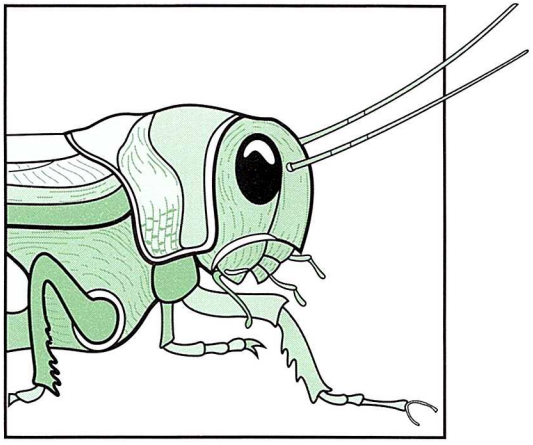
4. Choose Paint from the Style menu.
5. Click on Custom Color in the Fill or Stroke option group.

 A list box appears with a selection of the available PANTONE and custom ink colors.



6. Click inside the list box and type the number of the PANTONE Color you want to display. The color appears highlighted in the list box. A screen representation of the color appears both next to the color name and in the color preview box.

7. If you want a screened percentage of that color, double-click in the Tint field and enter the percentage.
8. Click OK.



Although the PANTONE MATCHING SYSTEM was created specifically for use with ink mixes, you can also simulate the PANTONE Colors with the four-color process. To do this, you need the *PANTONE Process Color Simulator,* which lists the percentages of cyan, magenta, yellow, and black needed to simulate a given PANTONE Color. The *PANTONE Process Color Simulator* is available at most graphic arts supply stores or directly from Pantone, Inc.

Creating your own ink colors

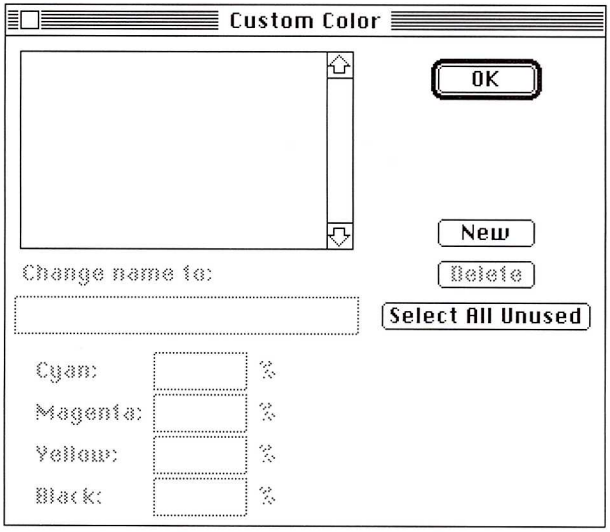
If you desire an ink color representation other than the ones available in the program, you can also create you own ink mixes and display them on your monitor.

Custom ink mixes are expensive, and you will have to work very closely with your print shop. Once you have obtained a sample of your ink color, compare it to the tint charts in the back of this book or elsewhere to determine the four-color-process combination that most closely matches your ink color. Note the percentages for the tint; these are the numbers you will use to create the on-screen representation of your ink color

To create and assign your own ink colors:

1. Choose Custom Color from the Style menu.

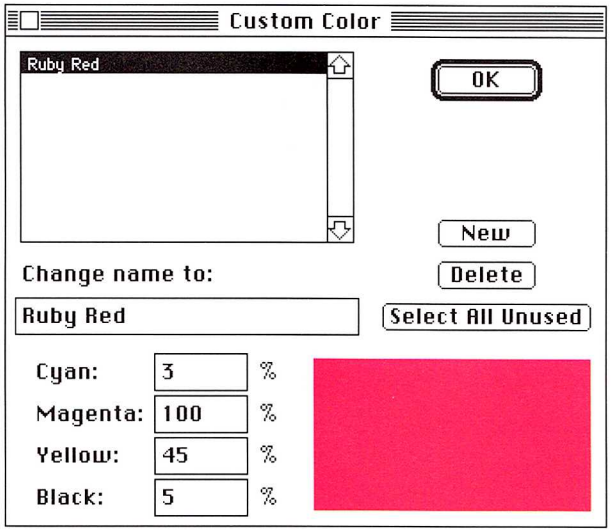
 The Custom Color dialog box appears.



2. Click New. The name *New Color*, followed by a number, appears in the list box and in the Change Name To field.
3. Enter the name you want to assign to the color in the Change Name To field.
4. Press the Tab key. The Cyan field is highlighted.
5. Enter the percentage of cyan to be used in the custom color.

 As you enter each process color percentage, the changes are immediately reflected in the color preview box in the lower right corner of the dialog box.
6. Press the Tab key. The Magenta field is highlighted.
7. Enter the percentage of magenta to be used in the custom color.
8. Press the Tab key again. The Yellow field is highlighted.
9. Enter the percentage of yellow to be used in the custom color.
10. Press the Tab key once more. The Black field is highlighted.
11. Enter the percentage of black to be used in the custom color.
12. If you are using a color monitor, check the color preview box to see that the color displayed approximates your choice.
13. When you have assigned the desired color values, click OK.

The custom color you have created now appears in the Paint dialog box, listed alphabetically with the other custom colors. You can use this color just as you would any other custom color. The colors that you create are saved with the documents in which they were created.



As long as the document in which you created your custom color is open, you can assign the color to objects in other documents. Once a custom color has been used in a document, it permanently joins the list of colors available in that document. Custom colors used in a document and later discarded remain part of the document unless they are deleted.

TIP: If you use certain special colors regularly, create a document that contains all of these colors. As long as that document is open, you can use the colors in other documents.

To delete unused custom colors:

1. Choose Custom Color from the Style menu. The Custom Color dialog box appears.
2. Click on the color you want to delete, or click Select All Unused if there are several unused colors you want deleted from your document. This procedure will delete the specified colors from all open documents, so be sure that only documents from which you want the colors deleted are open.
3. Click Delete.

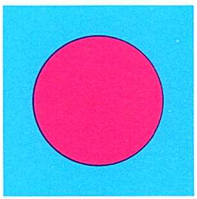
The selected custom colors are removed from the document. This procedure cannot be undone. Be careful to delete only colors that you do not plan to use again.

Although you create custom colors by specifying combinations of the process colors, you get only one negative, not four, when you print the separation for that color. The printer will mix the inks to your specifications before printing the document. To convert a custom color back into its process color components, use the convert-to-process feature in Adobe Separator. For more information on this, see "Converting Custom Colors to Process Colors" in Chapter 6.

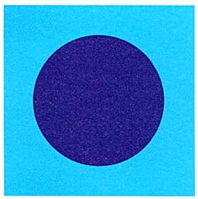
Chapter 3: *Overprinting*

Overprinting is the printing of one color on top of another. Normally, the PostScript language automatically masks objects that overlap one another, so that the object on the bottom does not print where another object overlaps it. This is usually the way you will want your artwork to appear.

Sometimes, however, you may want to overprint to achieve a certain visual effect. You can also use this technique to create trap, described under "Creating Trap."



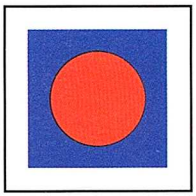
without overprint



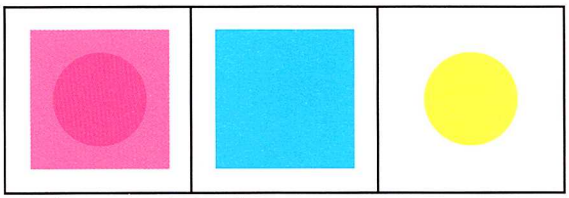
with overprint

If the color you want to overprint is 100 percent black, it is not necessary to use the overprint feature. The Adobe Separator program automatically assigns black to overprint all other colors. Tints of black, however, must be specified to overprint.

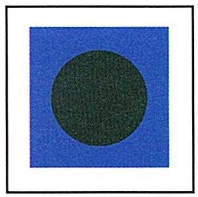
When overlapping objects are assigned more than one color, only the colors that are *not* common to both objects are affected by the overprint feature. Colors that are common to both objects print as they normally would, with the topmost object masking the object underneath it.



object
as seen on
monitor



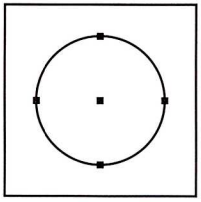
colors separated out



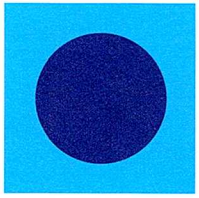
object
printed
with overprint

To overprint:

1. Select the object you want to have overprint another. It must be the topmost object.



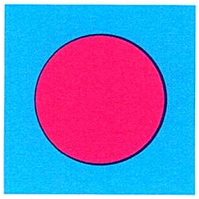
2. Choose Paint from the Style menu.
3. Click in the Overprint checkbox in the Fill option group.
4. Click OK.



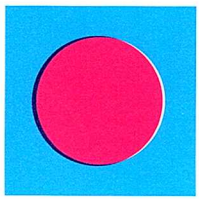
There is no way to preview the results on the monitor; the object will appear the same on the screen, regardless of whether the Overprint option is turned on or not. The overprint feature also does not work on color or black-and-white laser printers. When you print the separations, however, you will see that the objects affected by the overprint feature do, in fact, overlap. Artwork that uses the overprint feature should be examined carefully when it is proofed to ensure the proper results.

Creating Trap

If any areas of color in your image touch, you may need to overprint them slightly to prevent tiny gaps from appearing when the document is printed. This technique is known as adding trap. The two figures shown here are identical except for trap.



with trap



without trap

Notice that the illustration without trap shows a tiny bit of white along the edge between the outside line and the inside color. Ideally, you should never see this white area. The inner color is the right size to fill the circle, but it is *exactly* the right size. Unfortunately, presses are never exact. (Consider that the average four-color press produces 10,000 sheets per hour.) Even the best presses experience slight shifts in the position of the images.

To ensure trap, print shops use techniques called *shrinking* and *spreading*, in which trap is created by overexposing the film to produce the necessary overlap. Because you are printing your Adobe Illustrator 88 files directly to film, shrinking and spreading cannot be used, but trap can be produced using the program's overprint feature.

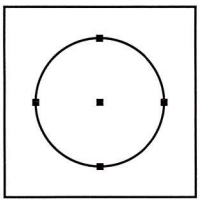
When two objects meet flush along a straight edge, you can easily create trap by assigning the topmost object to overprint and drawing the objects so that they overlap slightly.

When objects must trap along irregular edges or within other shapes, you must use a stroke to create trap. The same restrictions that apply to overprinting apply to trap. If two objects contain all four process colors, they cannot be trapped, but trap is less of a problem with this type of art.

NOTE: If the colors in your artwork all trap into solid black lines, you do not need to use the overprint feature to add trap. Adobe Separator will automatically create trap.

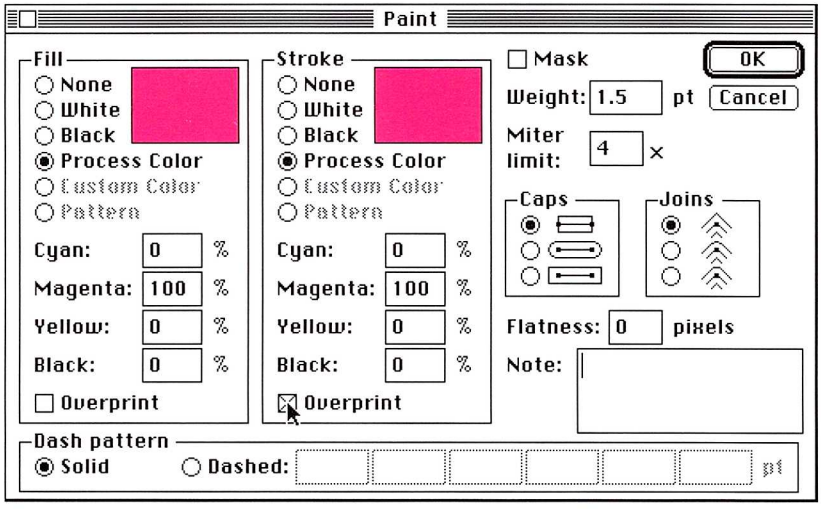
To create trap using stroke:

1. Select the topmost object of two that must trap into each other.



2. Choose Paint from the Style menu.
3. If the object has a fill value but no stroke value, click on the Process Color or Custom Color button, as appropriate, in the Stroke options.

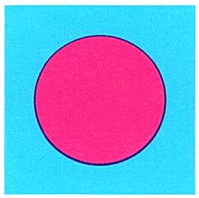
4. Enter the same process color percentages as those that appear in the Fill options, or choose the custom color and percentage that match the selection in the Fill options.



5. Double-click inside the Weight field to highlight it, and enter a value between 0.8 and 1.4. A stroke weight of 0.8 is a thin trap, and a stroke weight of 1.4 is a thick trap.

6. Click in the Overprint checkbox in the Stroke option group. Do not click in the Overprint checkbox in the Fill option group.

7. Click OK.



NOTE: If the object you want to trap already has a stroke, simply click on the Overprint checkbox in the Stroke option group.

As is true with other types of overprinting, trap does not appear on your monitor but will appear in the final printed results. When the negatives are printed, the stroke on the object will create enough overlap to allow for any movement of the press.

Chapter 4: *Printing Color Comps*

The Adobe Illustrator 88 program works with any color printer that contains a PostScript interpreter. You can use a color printer to produce color comps of your artwork before it is separated. Although comps from a color printer should never be used as a substitute for prepress proofs from the printer, they are a handy way of quickly checking your work for any obvious errors.



To print color comps:

1. From the Adobe Illustrator 88 program, open the Chooser desk accessory from the Apple menu, and make sure that the color printer is chosen.
2. Open the document you want to print.
3. Choose Print from the File menu.
4. When the Print dialog box appears, check the settings and click OK.

You can also print color comps from within the Adobe Separator program. See "Printing Selected Separations" in Chapter 6, "Printing Color-Separation Negatives."

Section 2: *Using the Adobe Separator Program*



Chapter 5: *Separating Files with the Adobe Separator Program*

Adobe Illustrator 88 documents that contain color information can be printed as four-color and custom color separations using the Adobe Separator utility program, which is included on the Tutorial/Utilities disk.

When you run the Adobe Separator program, it will automatically ask you to open a PostScript language file and a PostScript Printer Description (PPD) file. PPD files for various printers are supplied with the Adobe Illustrator 88 program. The program will also display the dimensions of the bounding box and let you change its size. The bounding box indicates the limits of the outside dimensions of an illustration. (Imagine the smallest rectangle that could contain your illustration.) Normally, the trim marks and registration marks appear just outside the bounding box. By changing the dimensions of the bounding box, you can control where the marks will fall on the page.

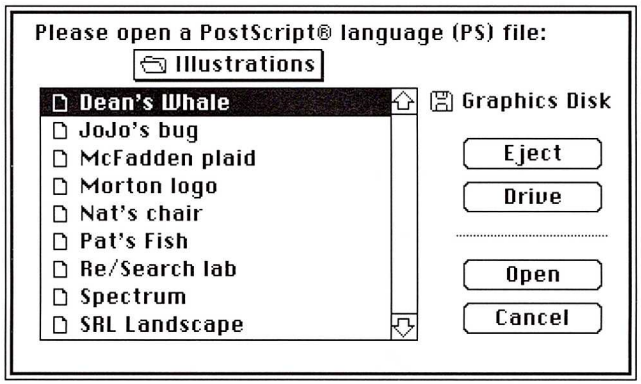


After you select the PostScript file you want separated and the PPD file for your printer, the Adobe Separator dialog box appears. From this dialog box, you can print all of the color-separation negatives using the default settings. You can also change the default settings and select one or any combination of color-separation negatives to be printed, or convert custom colors into their process color equivalents.

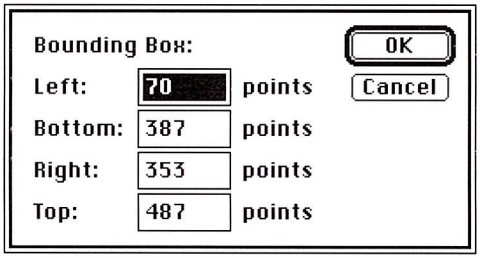
IMPORTANT: Except for the Color Comp option, which is intended for use with color printers, you should always print your separated files directly to film whenever possible. This ensures the closest possible match to your screen percentages, eliminates a step in the printing process, and avoids the potential problems that can occur when negatives are shot from paper prints.

To use the Adobe Separator program:

1. Double-click on the Adobe Separator program icon.
 A dialog box asking you to choose a PostScript language file appears.

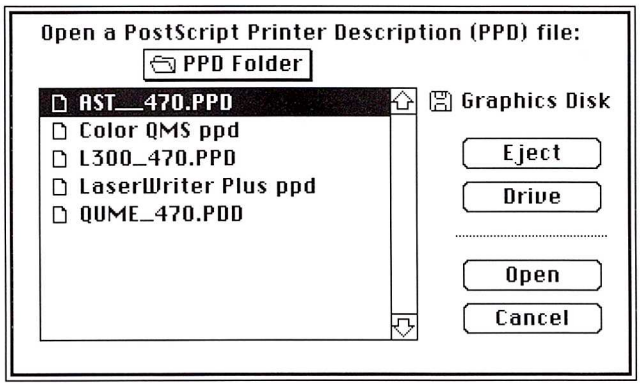


2. Choose the Adobe Illustrator 88 file you want separated.
 A dialog box showing the bounding box dimensions appears.

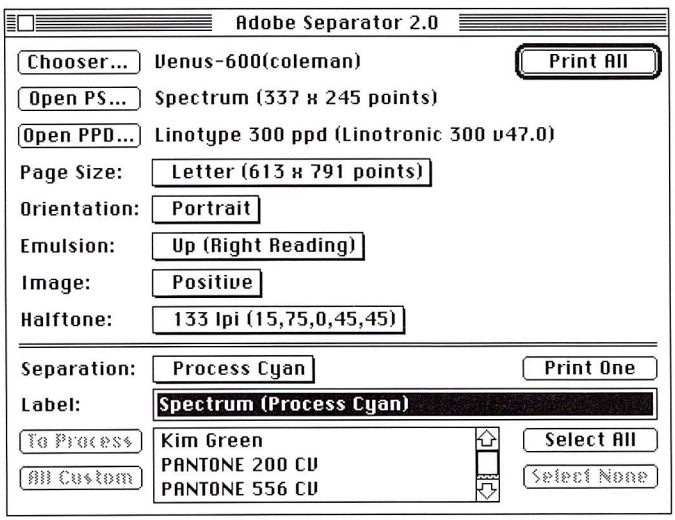


3. Enter any changes you desire to the bounding box dimensions and click OK.

 A dialog box asking you to choose a PostScript Printer Description (PPD) file appears.



4. Choose the PPD file that matches the printer you will be using to print your files. The Adobe Separator dialog box appears.



NOTE: Adobe Illustrator 88 and PPD files are saved as text files. Any other text and PostScript language files that are on the disk with your Adobe Illustrator 88 and PPD files also appear in the dialog box. If you choose an incompatible text file, Adobe Separator will alert you to the problem and will not open the file. If you choose an incompatible PostScript language file, Adobe Separator will open it, but you will not be able to print separations from the file.

5. Check the default settings and change them as necessary. (The options are described in the sections that follow.)
6. Click the appropriate button to produce the desired separations. (See Chapter 6, "Printing Color-Separation Negatives.")

TIP: Saving a copy of the PPD file you plan to use in the folder with your drawings will speed up the separation process and ensure that the PPD file you need is always readily available.

Changing defaults

Once you have opened a file with the Adobe Separator program, you can change any of the settings in the dialog box before you print the file. These settings include printer type, document, PPD file, page size, orientation, emulsion direction, image type, and halftone dot size.

Specifying another printer

The Adobe Separator program uses the printer currently selected in the Chooser. If you want to select a different printer, the program lets you open the Chooser without pulling down the Apple menu.

To specify another printer:

1. Click on the Chooser button.

 The Chooser dialog box appears.
2. Click once on the icon for the printer you want to use. If you are on a network connected to several printers, make sure that the proper printer name is selected.

Specifying another document

If you decide to print a different document after you have selected one, or if you have more than one document to be printed, you can specify a different document by clicking on the Open PS button.

To specify a different document:

1. Click on the Open PS button.

 A dialog box asking you to choose an Adobe Illustrator PostScript language file.
2. Double-click on the name of the Adobe Illustrator 88 document to be printed.

Specifying another PostScript Printer Description file

The PostScript Printer Description (PPD) file is a special document used by the Adobe Separator program to ensure the best results from your printer. Before the Adobe Separator program separates a document, it reads the PPD file you have specified. This file tells the program a number of things about the printer being used, including its dot resolution, the available page sizes, whether it supports color, and the acceptable screen rulings.

You should always use the PPD file that matches the type of printer you are using. Otherwise, you may not get the results you expect. PPD files are text files containing PostScript language instructions and can be modified by anyone familiar with the PostScript language.

To specify a different PPD file:

1. Click on the Open PPD button.

 A dialog box asking you to choose a PPD file appears.

2. Double-click on the name of the PPD file you want to use.

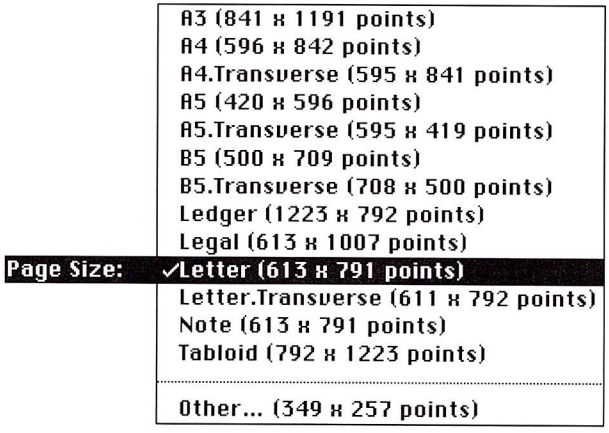
Specifying page size

The Adobe Separator program defaults to the information contained in the PPD file regarding the preset page size of the printer selected. You can change the page size to any of the sizes listed in the PPD file. The page size is listed either by its familiar name (such as Letter) or by its dimensions. The dimensions shown in parentheses after the page size are the limits of the printable area on the sheet. The printable area is listed in points and includes the area needed to print the corner marks, color labels, and register marks on each separation.

If you are using a printer that can selectively change the page size, you can also specify a custom page size. Page width and height specifications can be adjusted in 1-point increments. You can add offset, which moves the page away from the right edge of the printed sheet. You can also specify whether the page is to be printed transverse (rotated 90 degrees) or not. For more information on transverse, see the next section, "Specifying Image Orientation." Offset and transverse are useful when you are printing to devices such as the Linotronic 300 for which the cost of the photosensitive material is high. By using these features, you can avoid wasting film.

To specify a listed page size:

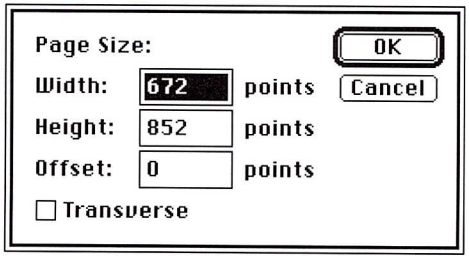
1. Click inside the Page Size field, and hold down the mouse button. A pop-up menu appears showing the available page sizes.



2. Drag until the page size you want is selected, and release the mouse button. The new page size replaces the former one in the field.

To specify a custom page size:

1. Click inside the Page Size field, and hold down the mouse button. A pop-up menu appears showing all the available sizes.
2. Drag until Other is selected, and release the mouse button. The Page Size dialog box appears.



3. In the Width field, enter the desired width in points, and press the Tab key. The Height field is selected.
4. Enter the desired height in points, and press the Tab key. The Offset field is selected.
5. Enter the desired offset in points.
6. Transverse changes the orientation of the page. If you want transverse on, click in the Transverse checkbox.

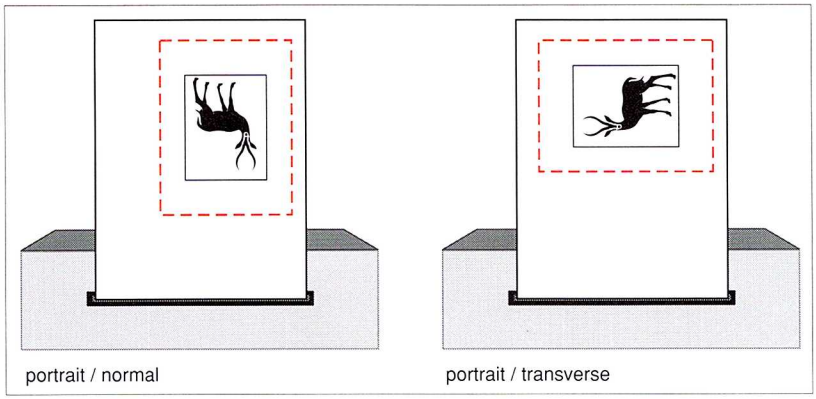
7. Click OK.

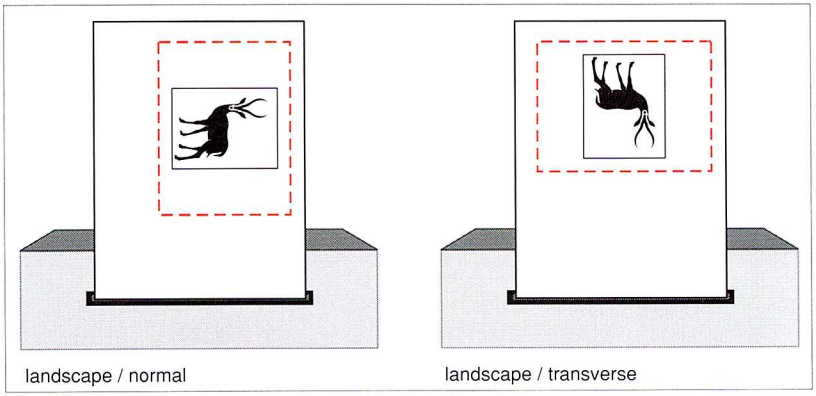
IMPORTANT: If you are using a Linotronic 300, the resolution at which the machine is set will affect the maximum size of your page. At a resolution of 2540 pixels per inch, the maximum page size is 11-1/2 by 12 inches. At a resolution of 1240 pixels, the maximum page size is 11-1/2 by 22 inches.

Specifying image orientation

Orientation determines the direction in which the image area will print. There are two choices: portrait and landscape. In portrait mode, the top of the image is printed parallel to the short edge of the page. In landscape mode, the top of the image is printed parallel to the long edge of the page.

Do not confuse transverse with orientation. Transverse changes the *page* orientation on the printed sheet. Orientation changes the *image* orientation on the page.





To specify the orientation of the image:

1. Click inside the Orientation field, and hold down the mouse button. A pop-up menu appears showing the two orientation choices.



2. Drag until the orientation you want is selected, and release the mouse button. The new orientation replaces the former one in the field.

Specifying emulsion type

Emulsion refers to the photosensitive layer on a piece of film or paper. Emulsion Up (Right Reading) means that any type in the image is readable when the photosensitive layer is facing you. Emulsion Down (Right Reading) means that the type is readable when the photosensitive layer is facing away from you. Normally, images to be printed on paper should be printed Emulsion Up (Right Reading), whereas images to be printed on film should be printed Emulsion Down (Right Reading). Check with your print shop first to determine which direction the emulsion on your separations should read.

To tell whether you are looking at the emulsion side or the base, examine the film after it has been developed under bright light. One side will appear shinier than the other. The dull side is the emulsion side. The shiny side is the base.

To specify the emulsion type:

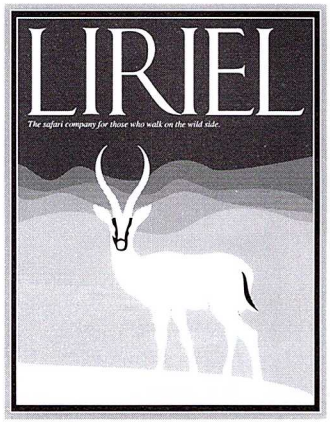
1. Click inside the Emulsion field, and hold down the mouse button. A pop-up menu appears showing the two choices.



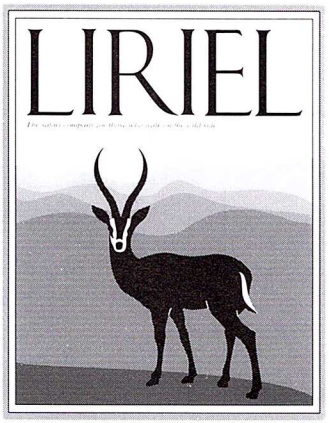
2. Drag until the emulsion type you want is selected, and release the mouse button. The new emulsion type replaces the former one in the field.

Specifying image style

An image can be either positive or negative. If you are printing separations directly to film, you will probably want negatives. If you are printing to paper, you will want positives.



negative



positive

To specify the image style:

1. Click inside the Image field, and hold down the mouse button. A pop-up menu appears showing the two choices.



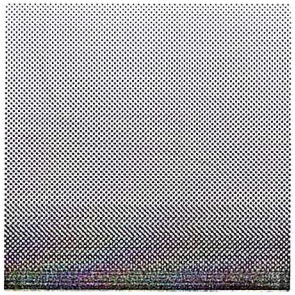
2. Drag until the image style you want is selected, and release the mouse button. The new image style replaces the former one in the field.

Specifying the halftone screen ruling

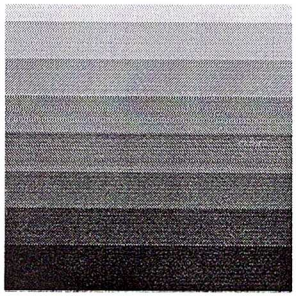
The Halftone field shows the *screen ruling* of the halftone pattern that will be used to print the separations. The screen ruling indicates how many halftone dots there are per inch. It is measured in *lines per inch*, or lpi. The default setting and the available choices will vary depending on the printer and PPD file you are using.

If you are using a Linotronic 300 or other high-resolution image-setting device, screen rulings are shown with the screen angles for the four process colors and the the custom color angle listed after it in parentheses. The angles listed are in the following order: cyan, magenta, yellow, black, and custom color.

As the screen ruling increases, the halftone dots become less noticeable, but there is a tradeoff between the screen ruling and the available number of gray shades. On a 300-dpi laser printer, for instance, a screen ruling of 60 lpi gives you a halftone dot with a 5-pixel by 5-pixel matrix, for a total of 26 possible shades of gray (including white, or no pixels). If you increase the screen ruling to 100 lpi, you reduce the dot matrix to 3 pixels by 3 pixels, for a total of 10 possible gray shades.



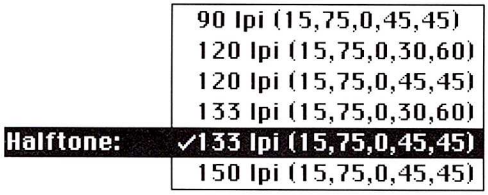
laser printer 60 lpi



laser printer 100 lpi

To specify the halftone screen ruling:

1. Click inside the Halftone field, and hold down the mouse button. A pop-up menu appears showing the available rulings and screen angles.



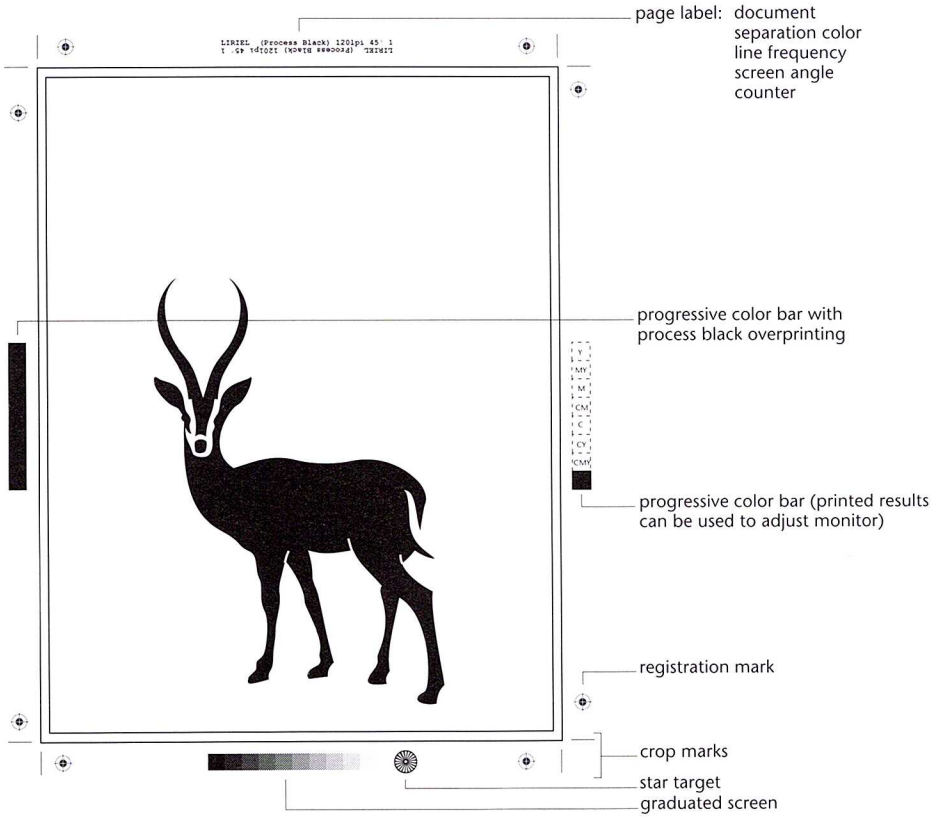
2. Drag until the ruling you want is selected, and release the mouse button. The new halftone setting replaces the former one in the field.

 NOTE: Most offset print shops cannot print halftones that have screen ruling of more than 150 lines per inch. Before setting any screen frequency higher than 100 lines per inch, check with your print shop to find out the maximum screen ruling it can print.

Chapter 6: *Printing Color-Separation Negatives*

When you start the Adobe Separator program, you are given a choice between printing all of the color separations or printing selected colors individually or in combination with other colors. You can also choose to convert custom colors into their process components. When you click Print All, you get one negative for each of the four process colors used and one negative for each of the custom colors used. Process colors and available custom colors that are not used are ignored. When you click Print One, what you get depends on the colors you choose to be printed.

Each separation is printed with registration marks, color bars, crop marks, and labels. Also included on the separation is a star target, which is used for both registration and image resolution, and a graduated screen to check color accuracy and dot gain on the press. These are used by your print shop to line up the negatives and correctly identify the color of each separation. *Do not remove them from the separations.*



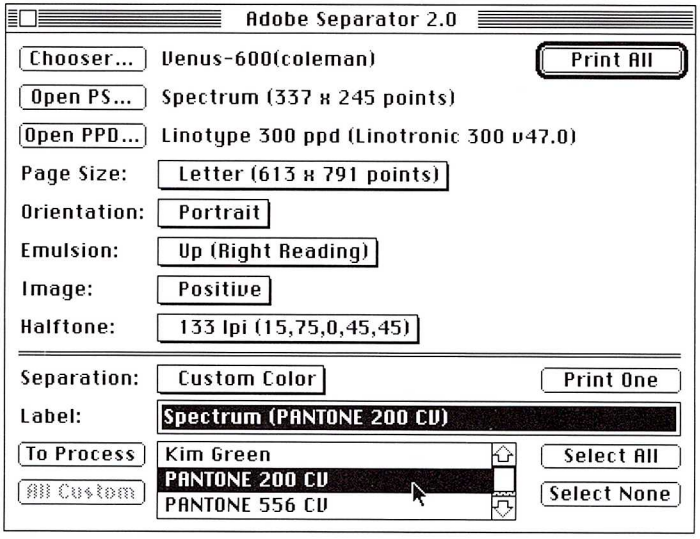
Although it is possible to print separations on paper, color separations should *always* be printed as film negatives. This eliminates a step in the printing process and avoids the image deterioration problems that occur when screened images are reshot.

Converting custom colors to process colors

Before printing your separations, you must decide whether you want to print the custom colors in your illustration as separate ink colors or as colors created with the four-color process. Adobe Separator can take any custom color you have chosen and break it down into its process color components.

To convert custom colors to process colors:

1. Select the custom color you want to convert by clicking on it in the list box at the bottom of the Adobe Separator dialog box.



2. Click To Process. The custom color automatically disappears from the list box.

 If you change your mind and want the colors converted back into custom colors, click the All Custom button. Any custom colors that were converted to process colors are returned to their original configurations and reappear inside the list box.

IMPORTANT: The PANTONE Colors available with Adobe Illustrator 88 were designed to give the best color simulation to video displays and comps from color printers. Although the convert-to-process feature can be used on these colors, the results may not match the original PANTONE Colors exactly, and results will vary depending on the calibration of the image-setting device you are using.

Printing all separations

Print All is the preset choice for the program. It causes all negatives for the document to be printed. If your drawing is made up of 11 different PANTONE Colors, you will get 11 color-separation negatives. If an illustration uses the four process colors, plus one PANTONE Color and a custom color, you will get six negatives.

To print all separations:

1. Click Print All, or press the Return or Enter key.

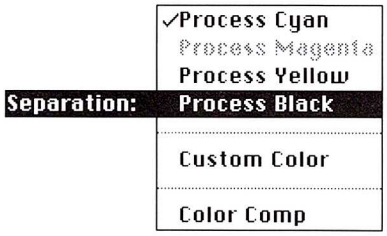
Printing selected separations

Use the Print One option when you want to print only a certain separation or when you want to combine colors on a single separation. How the separations print when you use the Print One button depends on the color or combination of colors that you choose to print.

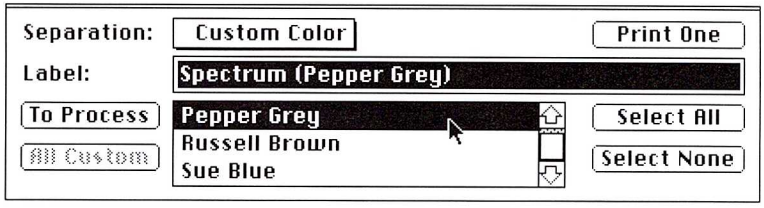
If you select one color and choose Print One, you will get the separation for that color. If you select two or more custom colors, you will get one separation that contains all of the selected colors. When you select one or more custom colors and a process color, you will get one separation containing both the selected process color elements in that document and the selected custom color or colors that appear on the separation. Combined colors will print with the same orientation as they have on the screen. If two or more colors overlap, the topmost color will overprint the colors underneath.

To print selected separations:

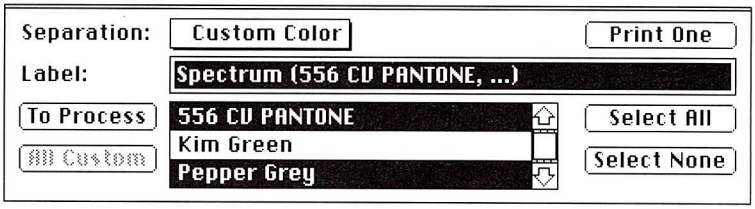
1. Click inside the Separation field, and hold down the mouse button. A pop-up menu appears showing the custom color, process color, and color comp labels. Colors not used in an illustration are dimmed and cannot be selected.



2. Drag to the color you want to print a separation for, and release the mouse button. The selected color appears in parentheses in the Label field. If you select Custom Color, the parentheses appear empty until a color chosen.



3. Choose the custom color you want to have appear on the separation by clicking on it. If you want more than one custom color to appear on the separation, hold down the Command key while selecting the additional colors.



4. Click Print One.

TIP: If you use certain process color combinations regularly, save them as custom colors and use the convert-to-process procedure to convert them just before printing.

If you choose Color Comp in the Separation field and click Print One, the artwork will print either as a color comp on a color printer or as black-and-white art on a black-and-white printer. Choosing Color Comp in the Adobe Separator program yields the same results as choosing Print in the Adobe Illustrator 88 program. For more information on this, see Chapter 4, "Printing Color Comps."

NOTE: If you hold down the Option key while you are in Adobe Separator, the Print One button changes to read "Save One." This allows you to save individual separations to disk as PostScript language files.

Section 3: *Appendices*

Appendix A: *Troubleshooting*

Streaks in the image

This effect is most noticeable in screened areas, where a screen tint that should be even in appearance is instead uneven and streaked.

Cause Improper development. This can occur if the film processor is set at the wrong speed, the chemicals are mixed incorrectly, or both.

Solution Notify the typesetting service or the technician who services your image-setting equipment. Check the chemistry and the speed of the processor. If necessary, remix the chemicals and start over.

Negatives too light

Place your hand behind the negative and look at it on a light table. If you can clearly see the outline of your hand through the negative, it is too light. Light negatives often result in incorrect color values when the printing plates are made. Colors will appear darker than they should, and lines and type will appear fuzzy.

Cause The laser intensity is misadjusted.

Solution Contact the technician who services your image-setting equipment to correct the problem.

Bands in the screened areas

Screened areas, instead of appearing even, appear to be segmented into bands, or rows, of dots.

Cause Laser misalignment.

Solution Contact the technician who services your image-setting equipment to correct the problem.

Wrong colors

Cause The colors may be labeled incorrectly in the Paint dialog box, or the printer may have mixed up the negatives.

Solution Double-check your work and then contact your print shop. If the negatives have been incorrectly labeled, the print shop can still use them as long as they are notified of the problem.

Moiré patterns

These patterns have several different causes. Often the appearance of the moiré pattern will give you a clue as to why it occurred.

Cause #1: Mismatched PPD file.

The Adobe Separator program is using information from an incompatible printing device to set up the image.

Solution Make sure the PPD file you use matches the printer.

Cause #2: The print shop rescreened the image.

This might happen if you gave your print shop paper prints instead of negatives. They may have decided that the dots were too small to reproduce accurately and reshot the negatives using a halftone screen, causing a double-screened pattern. This problem will not occur as long as you print directly to negatives.

Solution Never give the print shop paper prints to shoot from. Always print your separations directly to negatives.

Cause #3: The angles are wrong in the document.

This will never happen unless you change the default angles in the PPD files. The PostScript Printer Description files have been set up to ensure the best results. They should be altered only by people who are familiar with both the PostScript language and offset printing. Any changes made to a PPD file should be made to a copy of the file, never to the original file.

Solution Return the angles to their original settings and try again.

Blurry image

All the colors appear correct, but the image looks blurry or out of focus.

Cause There are two probable causes of this: misregistration on the press and press slur. Both are print shop problems.

Solution Notify the print shop. If the original image is sharp and clear, the job should be reprinted.

Wrong tint values

Cause The cause of this problem depends on where it first appears. The values might be wrong in the Paint dialog box. If the image is lighter than it should be, the negatives might be overexposed. If the prepress proof looks fine, but the image came out too dark or too light on the press, it might be a press problem.

Solution Check the percentages in the Paint dialog box against the tint charts at the back of this book, and see if the results match. (They may not be exactly the same, but they should be close.) Check the progressive color settings. (See Chapter 1, "Working with a Color Monitor.") Check the negatives on a light table with a magnifier. Are the dots sharp, or are they grayish? If the latter, notify your typesetting service or the technician who services your image-setting equipment about the problem and have the negatives remade. If the proofs were fine, notify your printer about the problem, and have the job reprinted.

Shade stepping in graduated screens

Cause Not enough machine pixels per halftone dot to create the necessary number of gray shades.

Solution Make sure that your image-setting equipment is set for the maximum number of dots per inch. On a 300-dpi or 600-dpi laser printer, there is no cure for shade stepping because there are not enough dots per inch to avoid the problem. For more information on this, see "Specifying the Halftone Screen Ruling" in Chapter 5, "Separating Files with the Adobe Separator Program."

Streaks off the ends of letters and objects

The most common place this occurs is on letters and solid areas that appear on a screened background.

Cause This problem is well known to printers. It is called *bromide lag*, and it occurs when the chemical balance in the film developer is incorrect.

Solution Notify your typesetting service about the problem. If you are using your own image-setting device, remix your developer chemistry.

Colors show through large, solid black areas

Cause Adobe Separator automatically assigns objects that are 100 percent black to overprint all other colors. Normally, this is a useful feature that eliminates many of the problems of trapping colors into black lines and type. The only time it becomes a problem is when a large, black solid overprints an area with two or more different colors behind it.

Solution Add 15 to 30 percent tints of cyan, magenta, and yellow to the black (check with your printer on the exact percentages you should use).

Ghosting

Cause Ghosting occurs whenever a large solid is followed by another large solid of a different shape. The ink roller on most presses is smaller than the plate cylinder. Normally, this does not occur unless you are printing large areas of solid color.

Solution Work closely with your print shop on this. They will be able to tell you if ghosting is a problem in your artwork.

Appendix B: *Error Messages*

Generic messages

Message*: There isn't enough memory to continue. Quitting Adobe Separator.*

Cause: Your system is out of memory. This can happen if you are working on a complex illustration or are running more than one program at once.

Solution: If you are running under MultiFinder or Switcher, quit from any other programs that you are running and try restarting Adobe Separator and working with the document. If there is still insufficient memory, you may have to specify Finder as the startup system and restart the system.

Message*: There isn't enough memory to do this.*

Cause: Your system does not have enough free memory to perform the specified operation.

Solution: Free up more memory, if possible, by quitting from other programs that may be running.

Messages occurring with Open PS

Message*: The file "<file name>" isn't an Encapsulated PostScript file.*

Cause: The document you are trying to open is not in the proper format.

Solution: Be sure that you are specifying the correct document name. The document must be written in the PostScript language.

Message*: The file "<file name>" can't be read (<reason>).*

Cause: Adobe Separator is unable to open the document for the reason stated.

Solution: See the list of reasons and solutions at the end of this appendix. Correct the error condition, if possible, and try again to open the document.

Messages occurring with Open PPD

Message: *The file "<file name>" isn't a PostScript Printer Description file.*

Cause: The file you specified is not a valid PPD file.

Solution: Be sure that you are specifying the correct document name.

Message: *The file "<file name>" can't be read (<reason>).*

Cause: Adobe Separator is unable to open the PPD file for the reason stated.

Solution: See the list of reasons and solutions at the end of this appendix. Correct the error condition, if possible, and try again to open the file.

Messages occurring with Print All and Print One

Message: *The separation "<separation name>" can't be printed (<reason>).*

Cause: The specified separation cannot be printed for the reason stated.

Solution: See the list of reasons and solutions at the end of this appendix. Correct the error condition, if possible, and try again to print the separation.

Message: *The file "<file name>" can't be read (<reason>).*

Cause: The file cannot be read for the reason stated.

Solution: See the list of reasons and solutions at the end of this appendix. Correct the error condition, if possible, and try again to print the separation.

Messages occurring with Save One

Message: *The file "<file name>" can't be written (<reason>).*

Cause: The program is unable to save the file for the reason stated.

Solution: See the list of reasons and solutions at the end of this appendix. Correct the error condition, if possible, and try again to save the file.

Reasons associated with error messages

Reason: ***Access privileges error***

Solution: You do not have sufficient privileges on the network to perform the operation. Speak with your network administrator.

Reason: ***AppleTalk communication error***

Solution: Check AppleTalk connections carefully. Make sure the printer is turned on. If everything seems to be connected properly, speak with your network administrator.

Reason: ***Disk error***

Solution: Your disk may have become corrupted. Try the operation again. If it still does not work, try shutting down the Mac and restarting it by turning the power off and then on again.

Reason: ***The disk is full***

Solution: On a hard disk, delete unneeded files and then try the operation again. On a diskette, either delete unneeded files or insert another disk and then try the operation again.

Reason: ***The disk is locked***

Solution: Be sure that you want to make changes to this disk. Eject the disk, slide the small tab away from the edge of the disk, reinsert the disk in the drive, and try the operation again.

Reason: ***The file is busy***

Solution: The file is open on another computer on your network. Speak with your network administrator.

Reason: ***The file is locked***

Solution: The Locked box in the file's Info dialog box is checked. From the Finder's desktop, select the file's icon and choose Get Info from the File menu. Click in the Locked box to unlock the file.

Reason: ***The file is missing***

Solution: Speak with your network administrator.

Reason: *The server is no longer connected*

Solution: The file server may have crashed or been taken offline. Speak with your network administrator.

Reason: *The PostScript program caused an error*

Solution: PostScript language code in the file is not compatible with the Adobe Separator program. Talk to the program's developer. This error may also be caused by an out-of-memory condition.

Reason: *The printer is no longer connected*

Solution: Check connections carefully, or speak with your network administrator.

Reason: *The printer is not available*

Solution: The printer currently specified in the Chooser is not available. Specify another printer, or speak with your network administrator.

Reason: *Unknown error*

Solution: It is not clear why the operation cannot be performed. Try the operation again. Restarting the system might help.

Bibliography

If you are interested in pursuing the topic of printing further, the books listed in this section are some of the best available.

Basic Law of Color Theory, The
Harald Kueppers. Woodbury, New York: Barrons, 1980.
This definitive book on color theory is translated from the German language. Although it is extremely technical, it is, nonetheless, a valuable resource for all kinds of information on color. Hardback and paperback.

Comprehensive Graphic Arts
Ervin A. Dennis and John D. Jenkins. Indianapolis: Bobbs-Merrill, 1983.
This book is intended for school use but remains one of the most thorough overviews of the various printing processes available. It includes step-by-step explanations of every facet of printing, from copy preparation to binding. Hardback.

Designer's Guide to Color, Volumes 1, 2, and 3
Ikuyoshi Shibukawa, Yumi Takahashi, James Stockton, and Jeanne Allen. San Francisco: Chronicle Books, 1984, 1986.
These three books are designed to help you avoid the unexpected surprises that often occur when colors are placed next to one another. The first two volumes consist of various swatch combinations of two and three colors. The third book contains more-complex swatch patterns with up to six colors in them. Each swatch lists the process screen tint values used to create it. Paperback.

Getting It Printed
Mark Beach, Steve Shapiro, and Ken Russon. Portland: Coast to Coast Books, 1986.
Subtitled "How to Work with Printers and Graphic Arts Services to Assure Quality, Stay on Schedule, and Control Costs," this is currently the best and most up-to-date book on printing and the graphic arts. It includes an exhaustive glossary and bibliography, plus sample printing quotation forms. Available in hardback and paperback.

Graphic Designer's Handbook
Alastair Campbell. Philadelphia: QED Publishing Limited, 1987.
Originally printed in Britain, *Graphic Designer's Handbook* is a wealth of information for the graphic artist. It includes an excellent section on color printing as well as tint charts. Hardback.

Graphic Designer's Production Handbook
Norman Sanders. New York: Hastings House, 1982.
One of the few graphic design books written with the limitations of the printing process in mind. It is virtually a checklist of the things graphic

designers often overlook when preparing their work for the printer. A must. Paperback.

Graphics Master 3
Dean Phillip Lem. Los Angeles: Dean Lem Associates, 1987.
This is less a book than a bound collection of virtually every tool and fact you might need when designing something to be printed. It contains a proportion wheel, tint charts, type charts, printer information, and much more. Hardback. (Updated every few years.)

Lithographer's Manual, The
Raymond Blair and Charles Shapiro, editors. Pittsburgh: The Graphic Arts Technical Foundation, Inc., 1980.
This massive volume covers everything from the invention of lithography to the comparative viscosity of different inks. Interesting and thorough, but not recommended for the novice. Hardback.

Pocket Pal
Michael Bruno, editor. New York: International Paper Company, 1983.
The bible of the graphics art world, this nifty little paperback covers every aspect of the printing industry, from typesetting and copy preparation to printing and binding. It also includes a history lesson on printing. A must. Paperback. (Updated periodically.)

Print Production Handbook
David Bann. Cincinatti: Quarto Publishing Ltd., 1985.
Similar in content and style to the *Graphic Designer's Handbook*. This volume contains less on graphic arts and more on all aspects of the printing process. Hardback.

Production for the Graphic Designer
James Craig. New York: Watson-Guptill Publications, 1977.
A brief tour of the entire printing process, from typesetting to paper milling. Expressly written for graphic designers to help them avoid problems when getting their work reproduced. Although much of the information is now dated, particularly the section on typesetting, the book is still a valuable resource. Hardback.

Small Offset: Preparation and Press
Les Crowhurst and Peter Burton. Pittsburgh: The Graphic Arts Technical Foundation, Inc., 1983.
Put out by the Graphic Arts Technical Foundation (GATF), this book is dry reading but offers a quick nuts-and-bolts rundown of the offset process. It gives a behind-the-scenes look at the guts of a print shop, telling how they work and why they do things certain ways. Also covers the basics of copy preparation. Paperback.

Glossary

The words listed in this section are ones that either appear in this manual or are often used within the printing industry. More information on all of the terms or concepts listed here is also available in many of the books discussed in the bibliography.

Additive primary colors Red, green, and blue. The three colors used to create all other colors when direct, or transmitted, light is used (television, for instance).

Benday An old printing term for screen tints. Taking from the name of a company that used to produce screens for the printing industry.

Blueline A prepress proofing material, used to proof black-and-white art before printing.

Coated stock Paper that has a light clay or plastic coating. A glossy or slick paper is coated. Often, the color you want depends on the type of stock on which you are printing.

Color Keys A color overlay proofing system produced by the 3M Company. (See *overlay proofs*.)

Comp A graphic arts term for comprehensive drafts. In Adobe Illustrator 88, a paper proof printed on a color printer before you print the final negatives is the equivalent of a comp.

Cromalin An integral proofing system produced by DuPont. (See *integral proof*.)

Custom color Color created using printing inks in PANTONE Colors or special ink mixes, instead of process colors.

CYMK Shorthand notation for cyan, magenta, yellow, and black.

Dots See *halftone dots* and *pixels*.

Dylux A brand name for blueline proofing material.

Emulsion The photosensitive layer on a piece of film or paper.

Folio Page number.

Ghosting The shift in ink density that occurs when large, solid areas interfere with one another.

Gripper The top part of a page where the printing press grabs the paper. Nothing can be printed in this area.

Halftone dots Dots as they appear on the printed page. The size of the halftone dots depends on the screen ruling used.

Integral proof A color proofing system that bonds all four process colors to a single sheet.

Knockout A generic term for a positive or overlay that "knocks out" part of an image from another image. The most obvious example of this is white type on a black background. The white type is knocked out of the background.

Landscape An orientation in which the "up" direction is along the short side of the page.

Lines per inch (lpi) See *screen ruling.*

Mechanical separations Color separations made based on black-and-white art.

Moiré pattern The distracting and unattractive pattern that occurs when two or more screen tints are are overlaid incorrectly. (See also *rosette.*)

Offset To move the image away from the right edge of the film or paper on which it is printing.

Offset printing A type of printing that uses an intermediate step to transfer a printed image from the plate to the paper.

Overlay proofs A color proofing system that uses transparent overlays for each of the four process colors.

Overprint To print a color so that another color falls on top of it.

PANTONE MATCHING SYSTEM A popular system for choosing colors, based on ink mixes.

Pixels The individual dots a printer uses to create each halftone dot.

Portrait An orientation in which the "up" direction is along the long side of the page.

PPD file PostScript Printer Description file. The document used by the Adobe Separator program to set the default information for the type of printer you are using.

Process separations Four-color separations made from color artwork.

Progressive color bar A bar displaying all the possible combinations of cyan, magenta, and yellow. Progressive color bars are printed on each sheet of a process color printing job to ensure proper ink coverage and color. The bar is usually trimmed off before the job is shipped. Sometimes the progressive color bar will also include black and screen tints of the combinations.

Reflected light See *subtractive primary colors*.

Resolution The clarity with which an image can be reproduced. The resolution of an Adobe Illustrator 88 image depends upon the device to which you are sending the file. The resolution of PostScript language image-setting devices (LaserWriter Plus, Linotronic 300, and so on) is measured in pixels per inch. (See *pixels*.)

RGB Shorthand notation for red, green, and blue. (See *additive primary colors*.)

Rosette The circular dot pattern that occurs when screen tints are overlaid correctly.

Screen ruling The number of lines per inch in a screen tint or halftone.

Screen tint A screened percentage of a solid color.

Shrink A positive image that has been reduced in width to create trap.

Spec sheet A mock-up, or copy of the drawing showing the various color values.

Spot color See *custom color.*

Spread A negative image that has been fattened to create trap.

Stripper The person who takes the negatives and "strips" them in the proper position so that they will run correctly on the press. The stripper is also usually the person who cuts the color-separation masks when mechanical separations are made.

Subtractive primary colors Cyan, yellow, and magenta. The three colors used to create all other colors when reflected light is used (for instance, in printed material).

Transmitted light See *additive primary colors.*

Transverse Rotation of the page on the film or paper on which it is printing. Currently, this term is applicable only to Linotronic typesetting machines.

Trap Overlap needed to ensure that a slight misalignment or movement of the separations will not affect the final appearance of the job.

Uncoated stock Paper that is not coated. Uncoated paper is usually less smooth and absorbs ink more readily.

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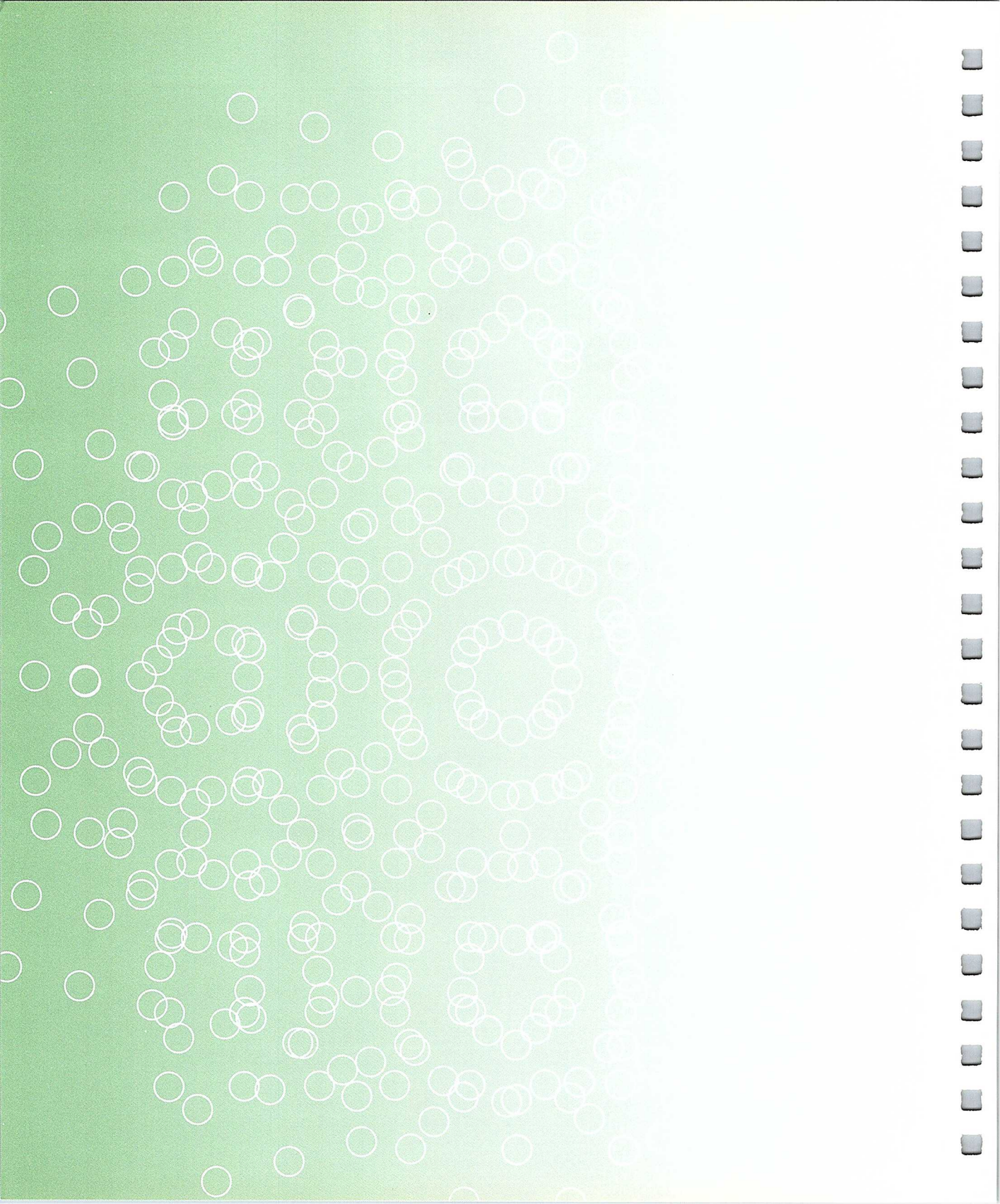
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Section 4: *Color Tint Charts*



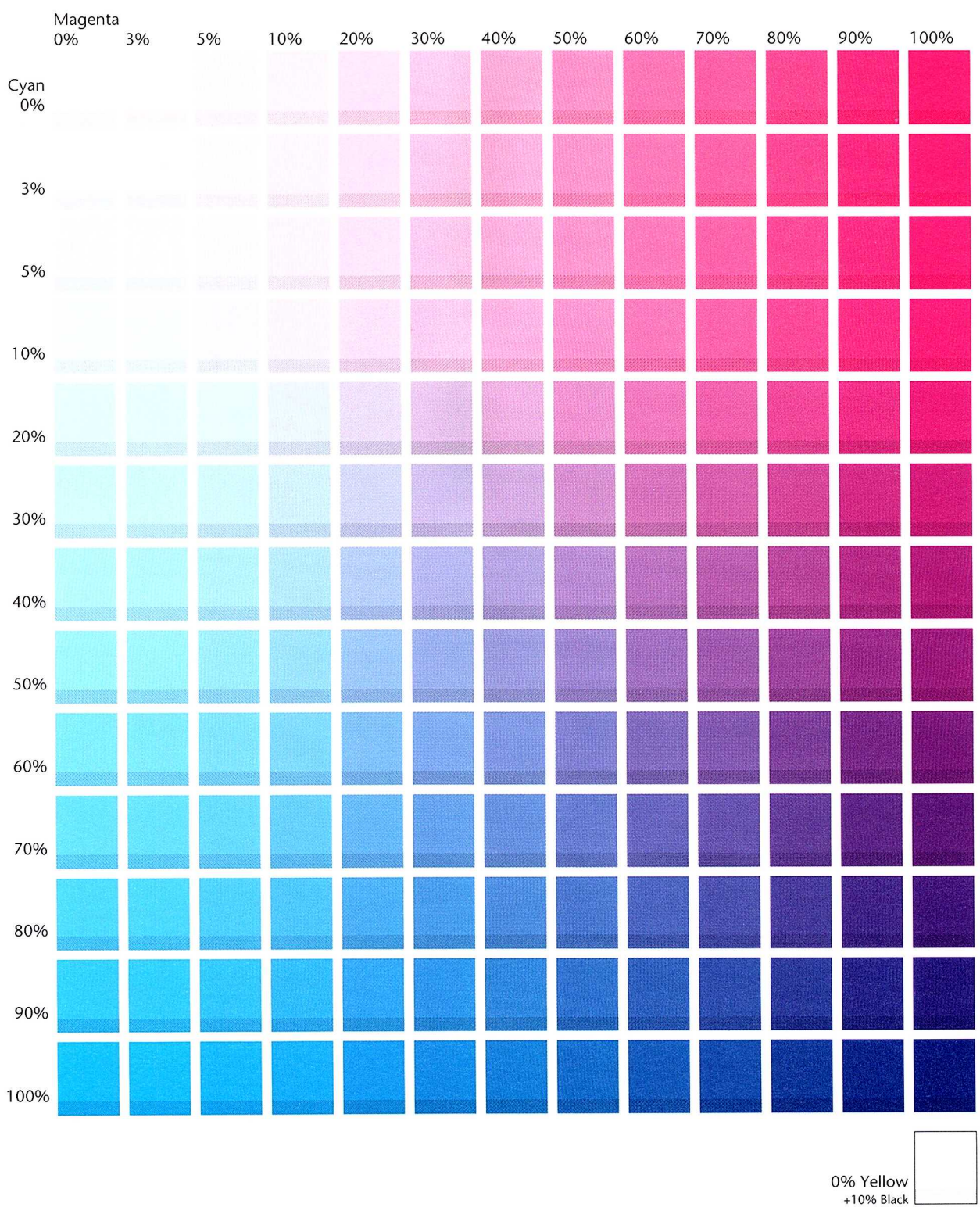
Color Tint Charts

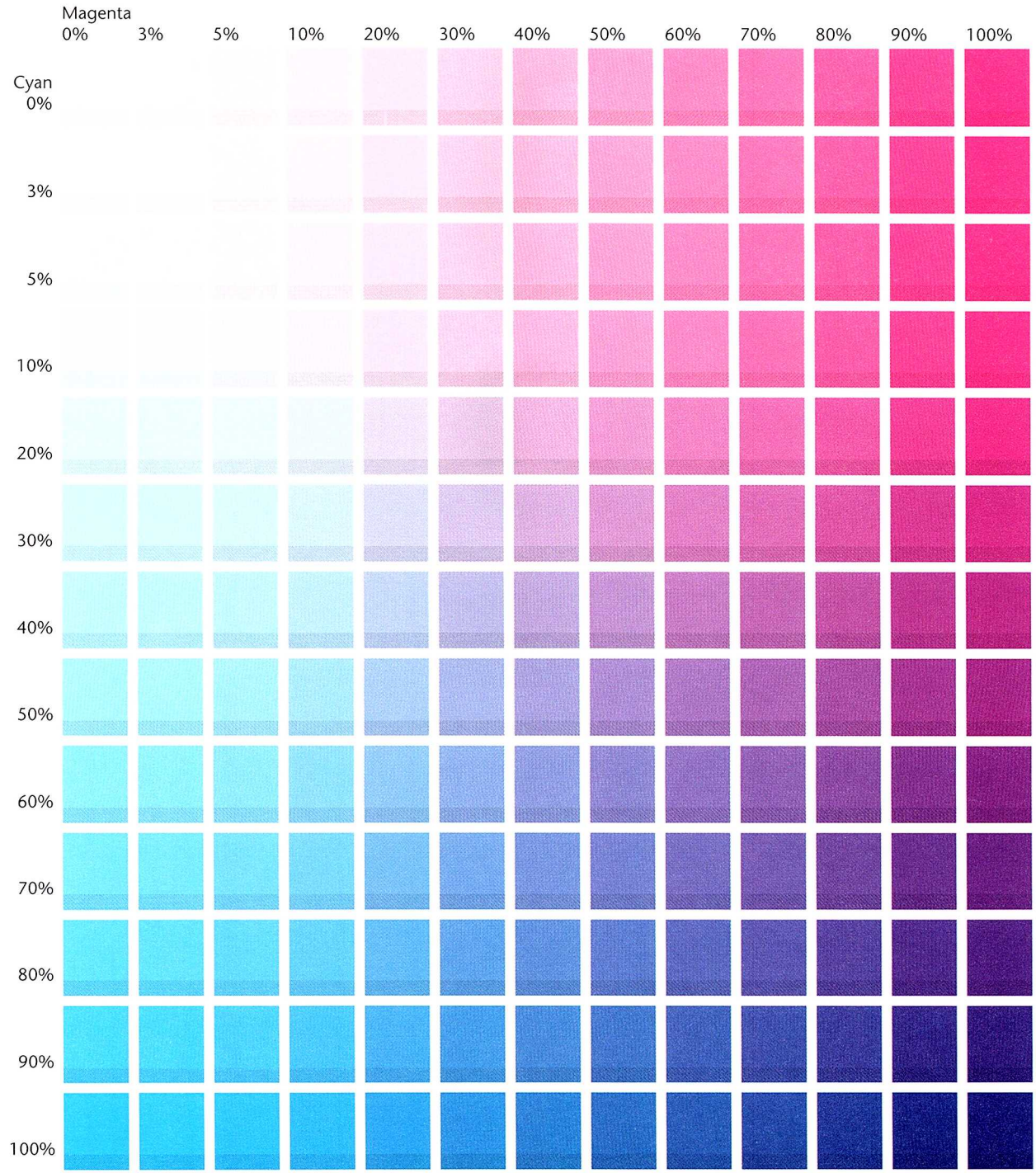
The following tint charts were created using the Adobe Illustrator 88 program. The separations were produced on a Linotronic 300 using the Adobe Separator program. These charts represent the full range of colors that you can create with the four-color process. Certain colors, such as fluorescent and metallic colors, cannot be reproduced using the process colors and require special ink mixes.

Each page represents a base percentage of yellow, from 0 to 100. Tint combinations of cyan and magenta, from 0 percent to 100 percent, are printed over these base percentages. In addition, the bottom section of each tint square is overlaid with a 10 percent tint of black. Also included are three charts showing cyan, magenta, and yellow in combination with various percentages of black.

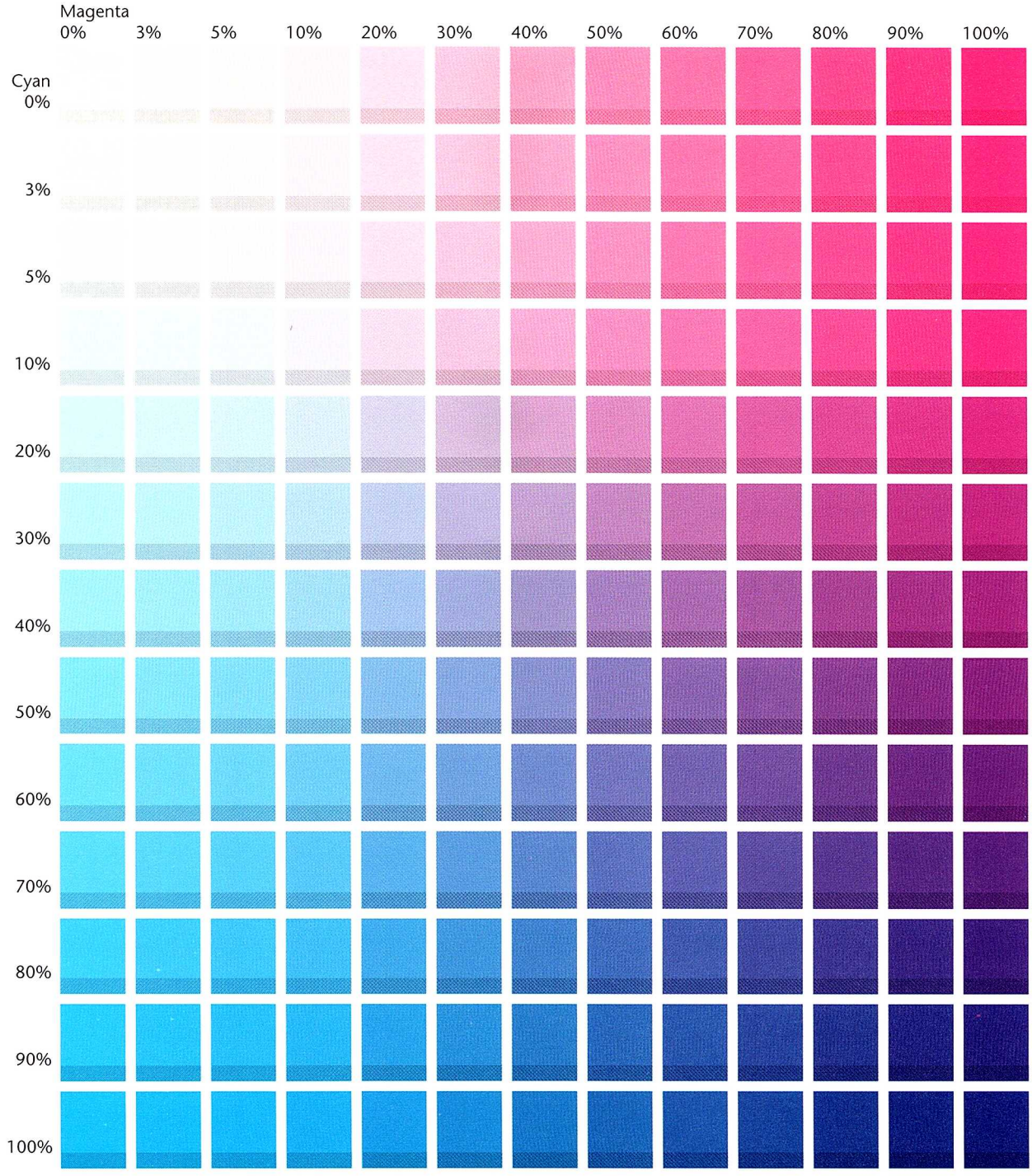
To find the process color percentages for a color, first find the color you want to print in the tint charts. Note the percentage of yellow displayed in the lower right corner of the page. If none is listed, the percentage of yellow is 0. The percentage of magenta is shown at the top of the column in which your chosen color appears. The percentage of cyan is shown to the left of the row in which your color appears. On the charts that show the combinations of black and the other three process colors, the percentages of black are listed to the left of each row and the percentages of the other three colors are listed at the top of each column.

Because of differences in the calibration of various image-setting devices, compounded by variations in the ink colors, dot gain, and other pressroom factors, the color you get may vary from what is shown here. The color of the paper and whether it is coated or uncoated will also affect the final appearance of the color you have chosen.

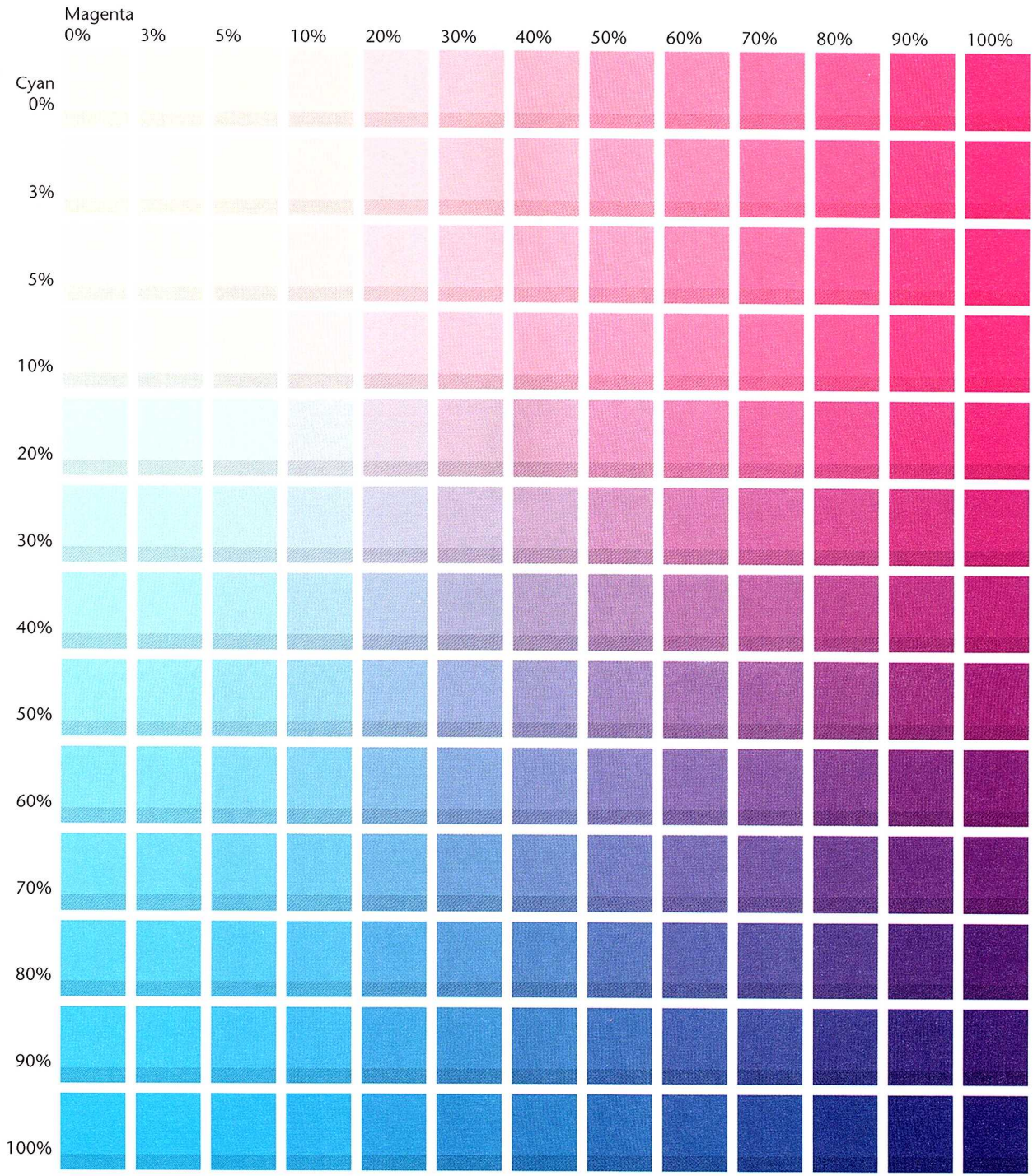

Magenta
0%
3%
5%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Cyan
0%
3%
5%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
0% Yellow
+10% Black



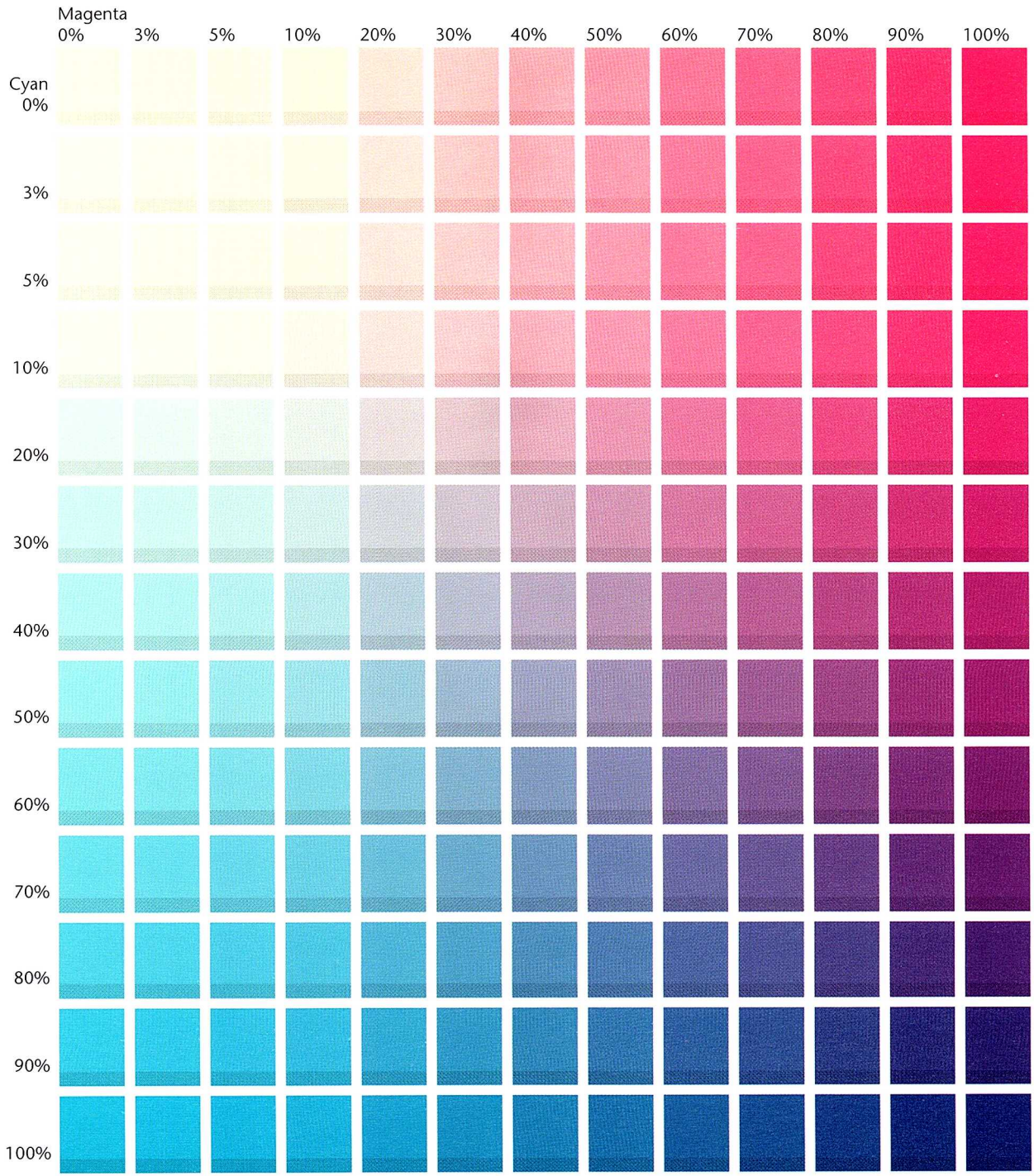
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+10% Black



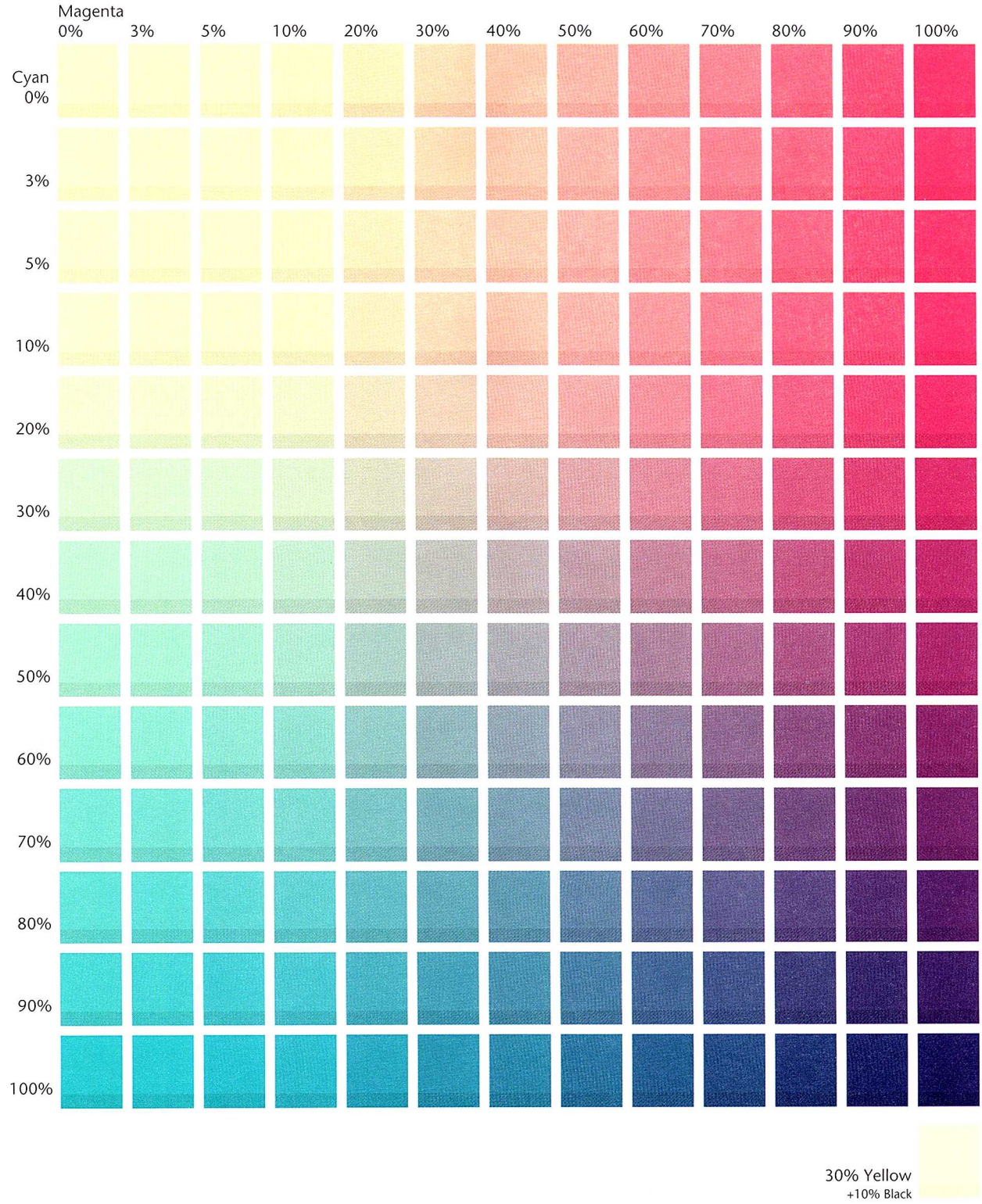
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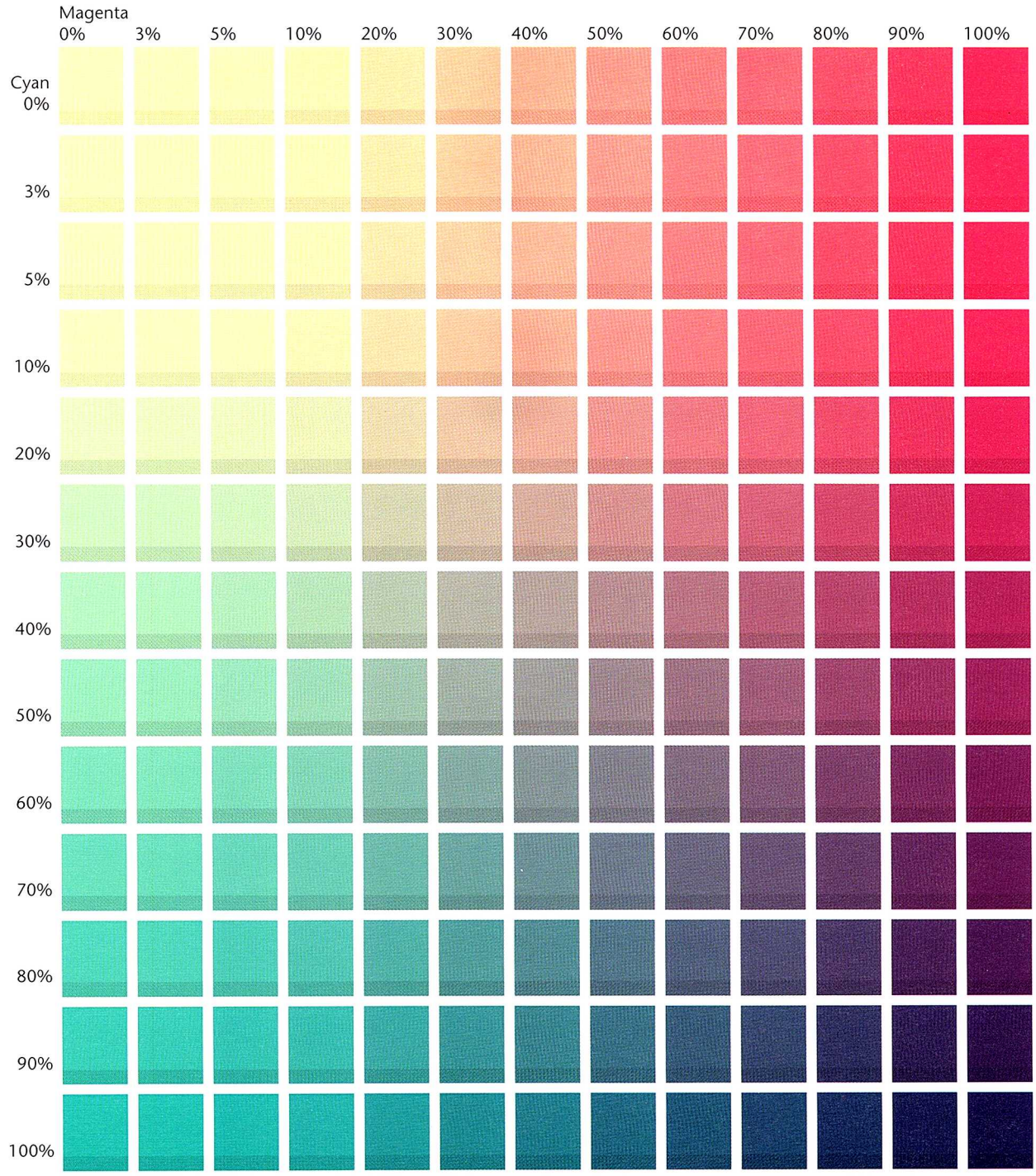


10% Yellow
+10% Black

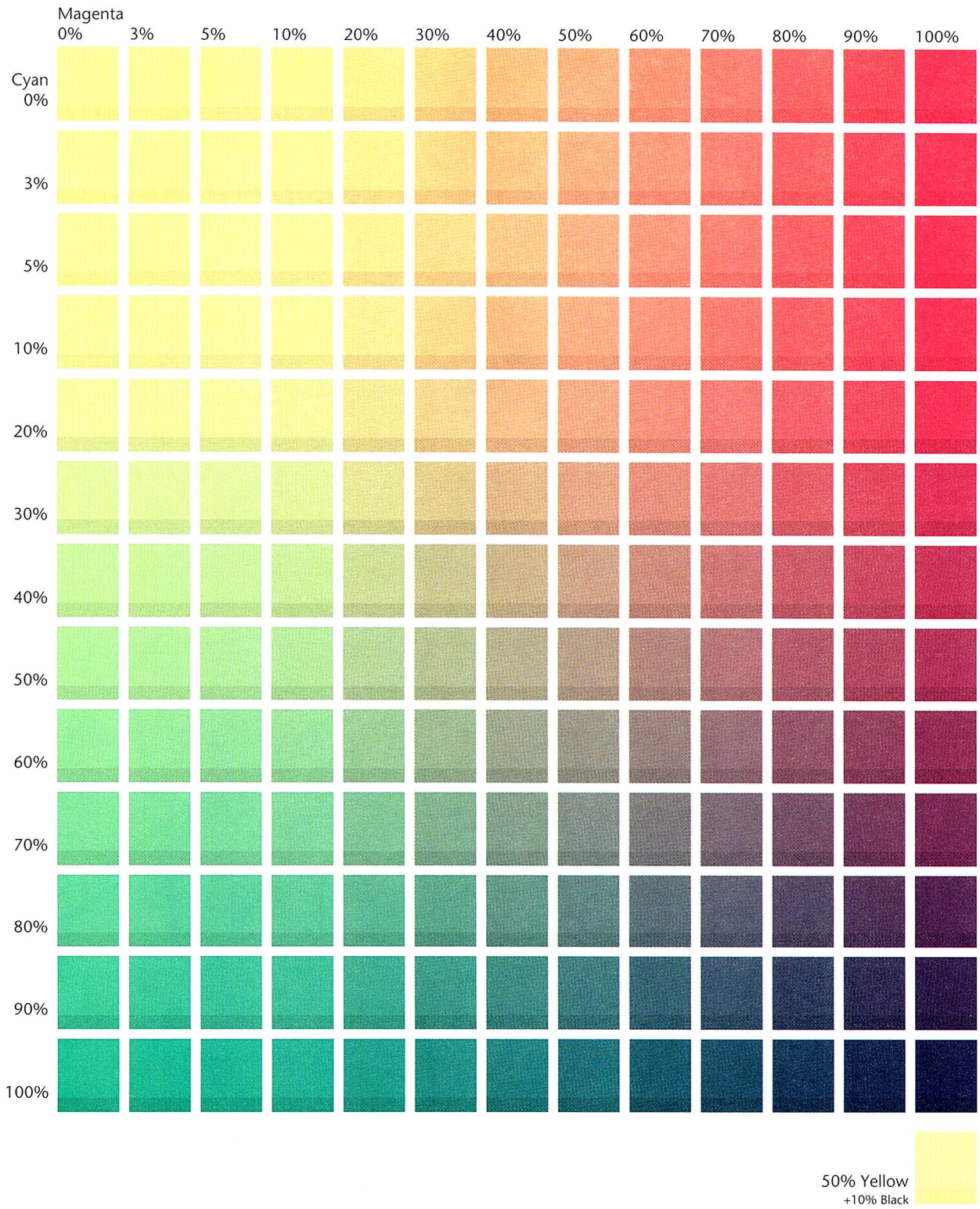


20% Yellow
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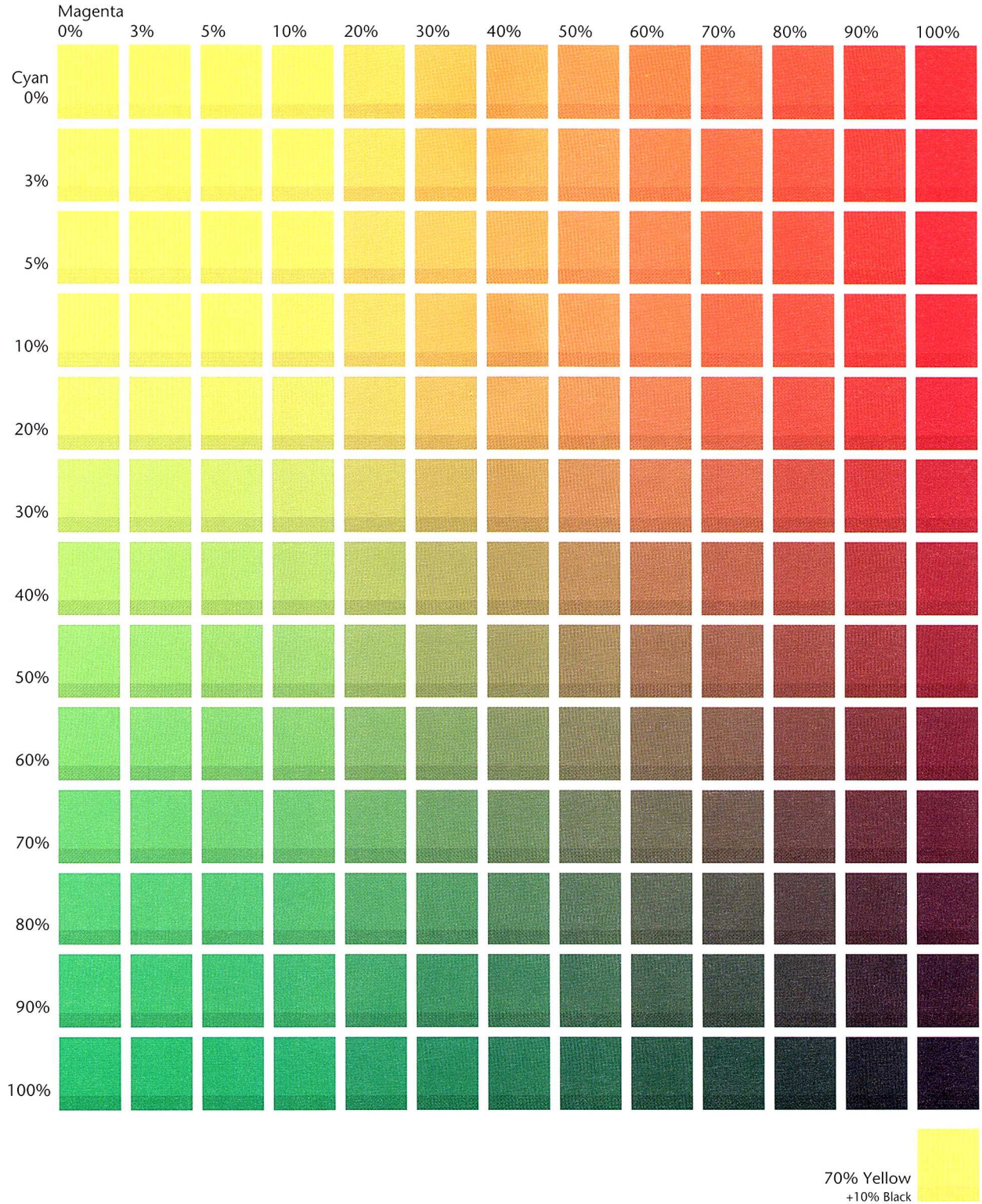

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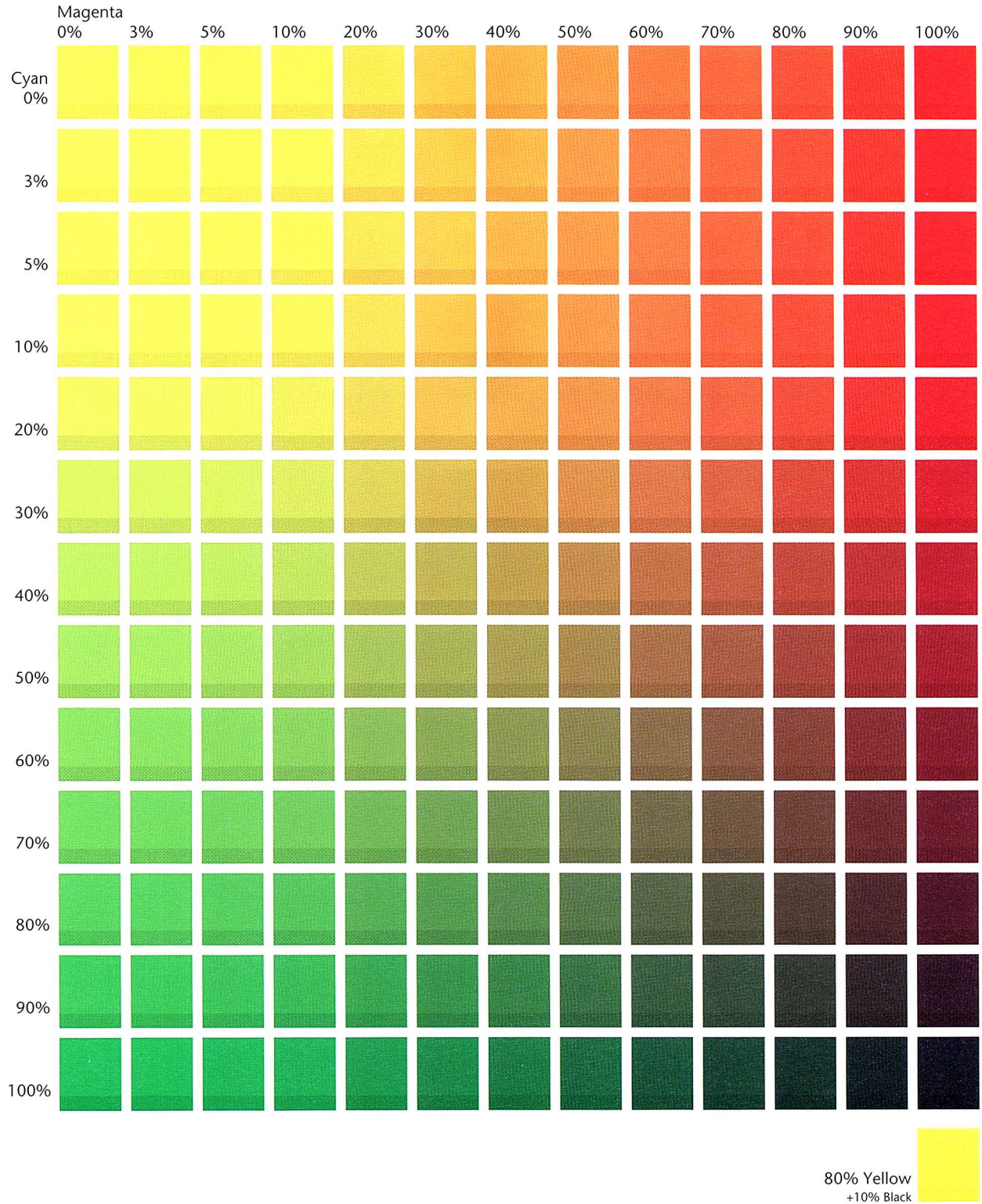


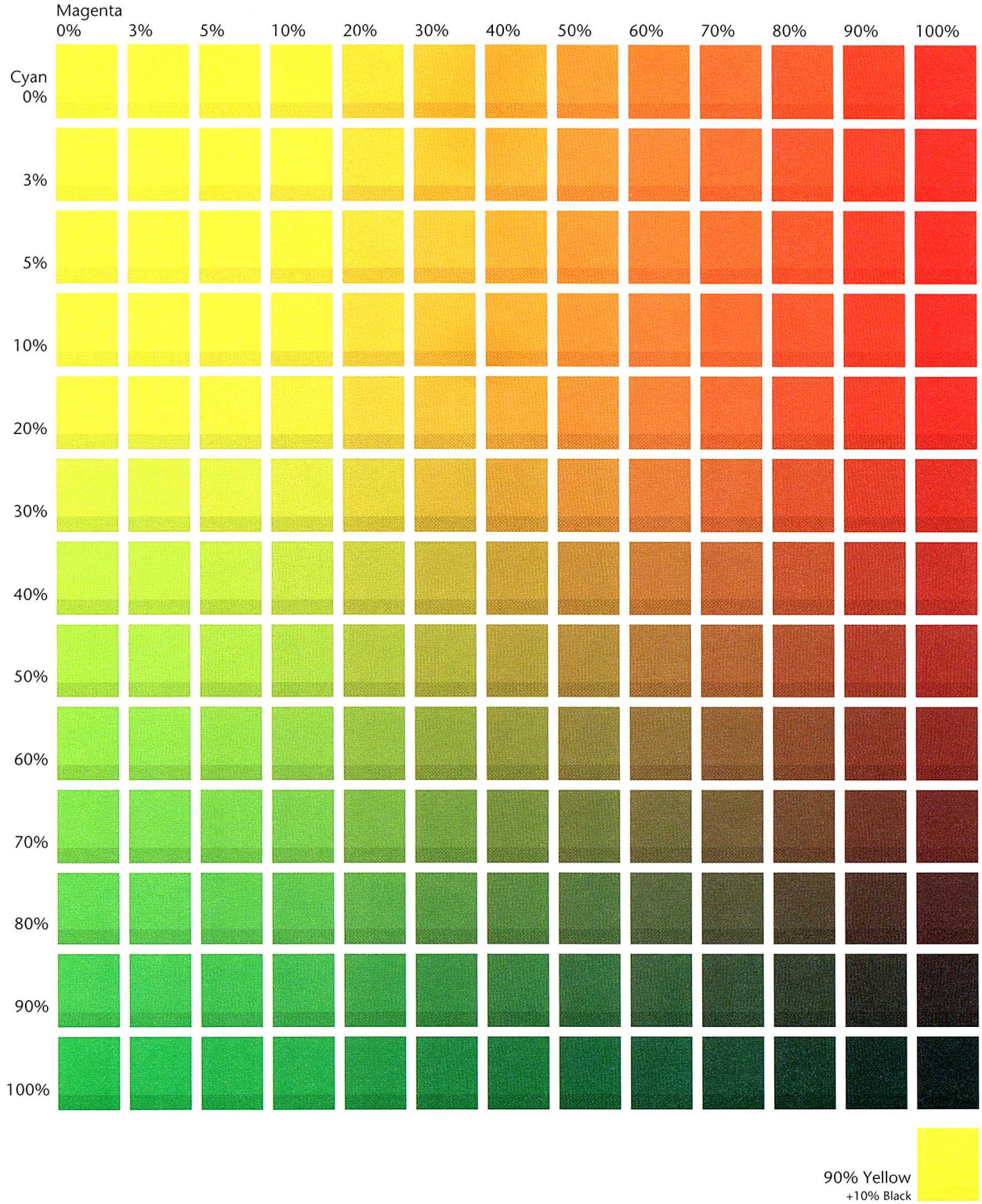
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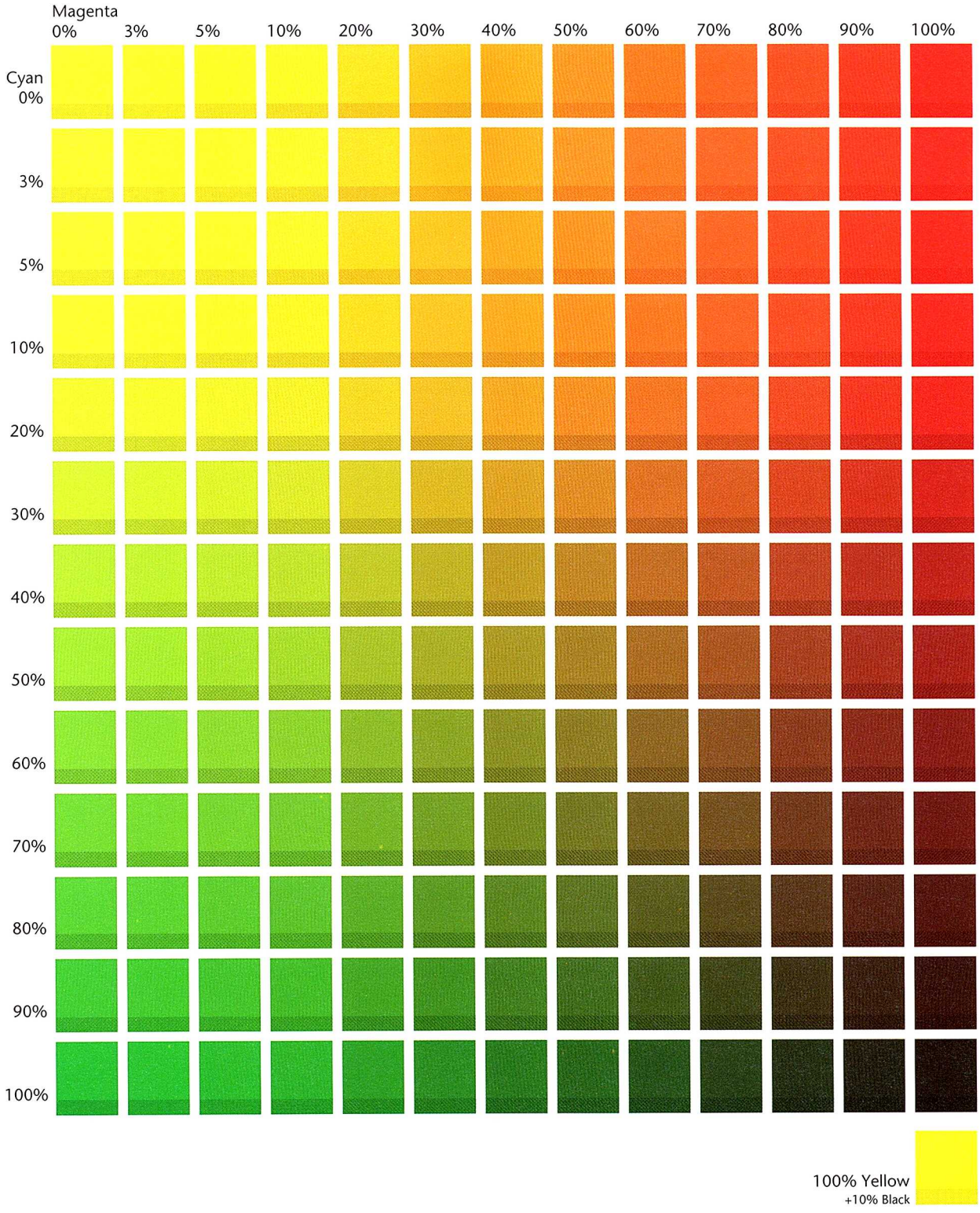

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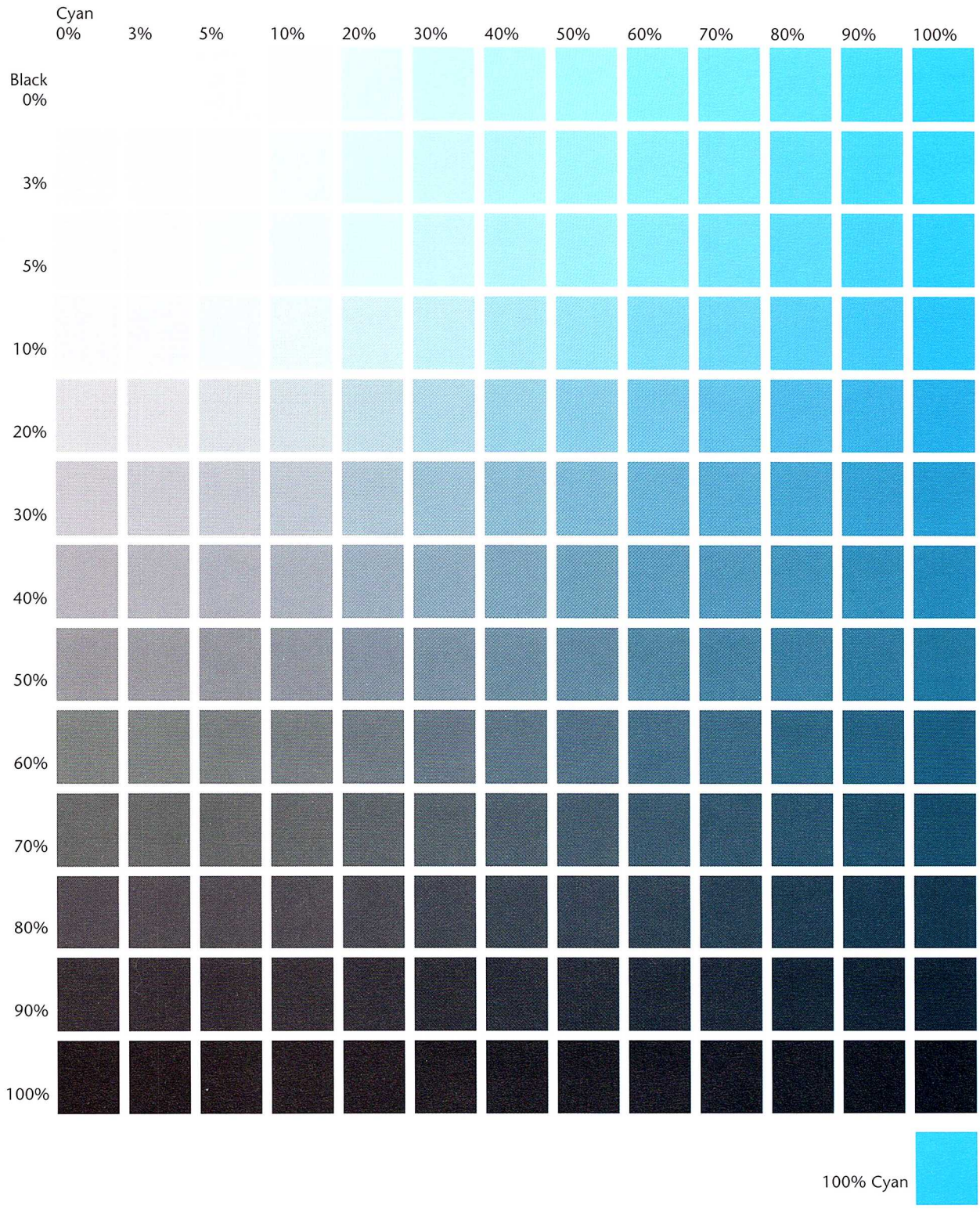

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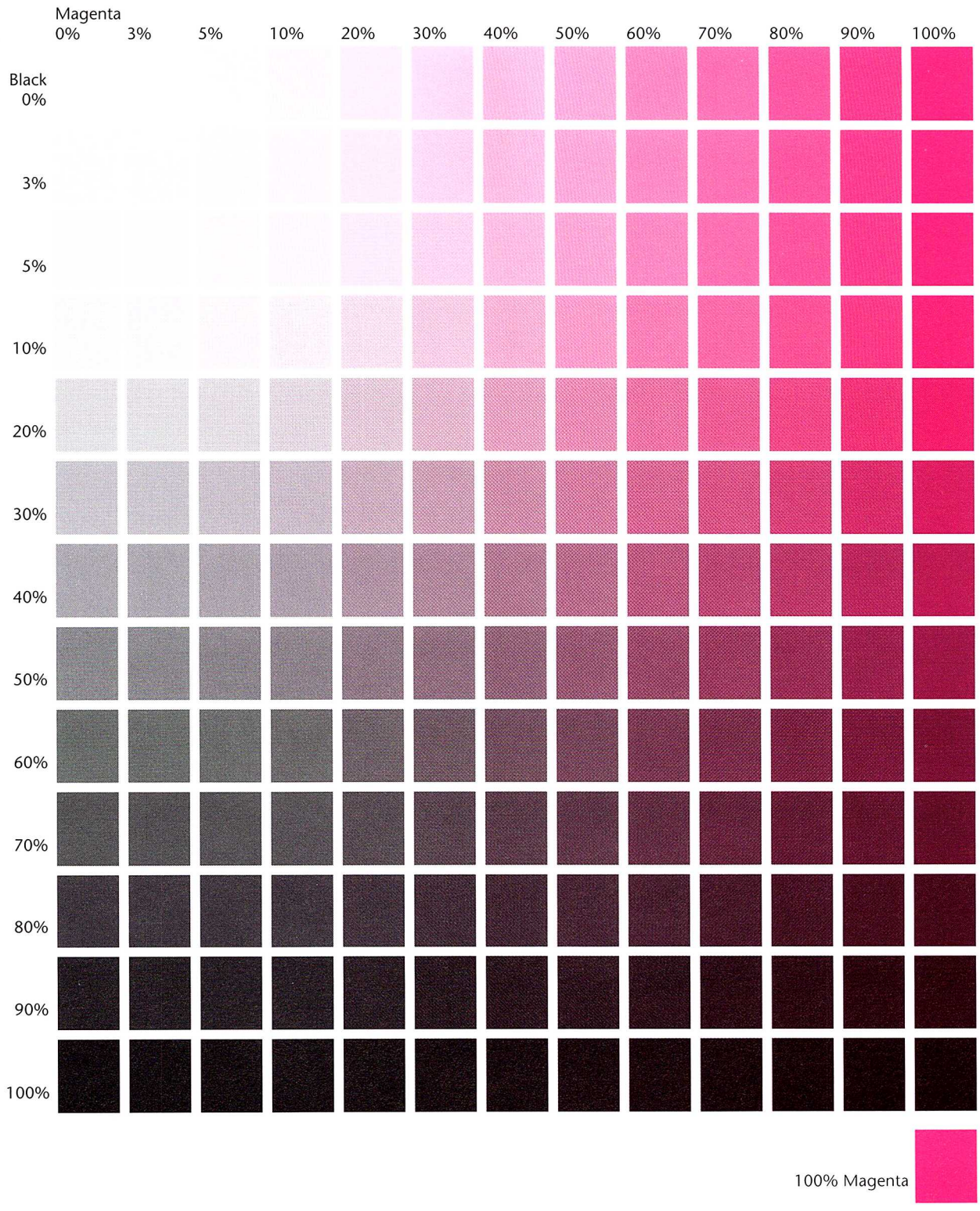

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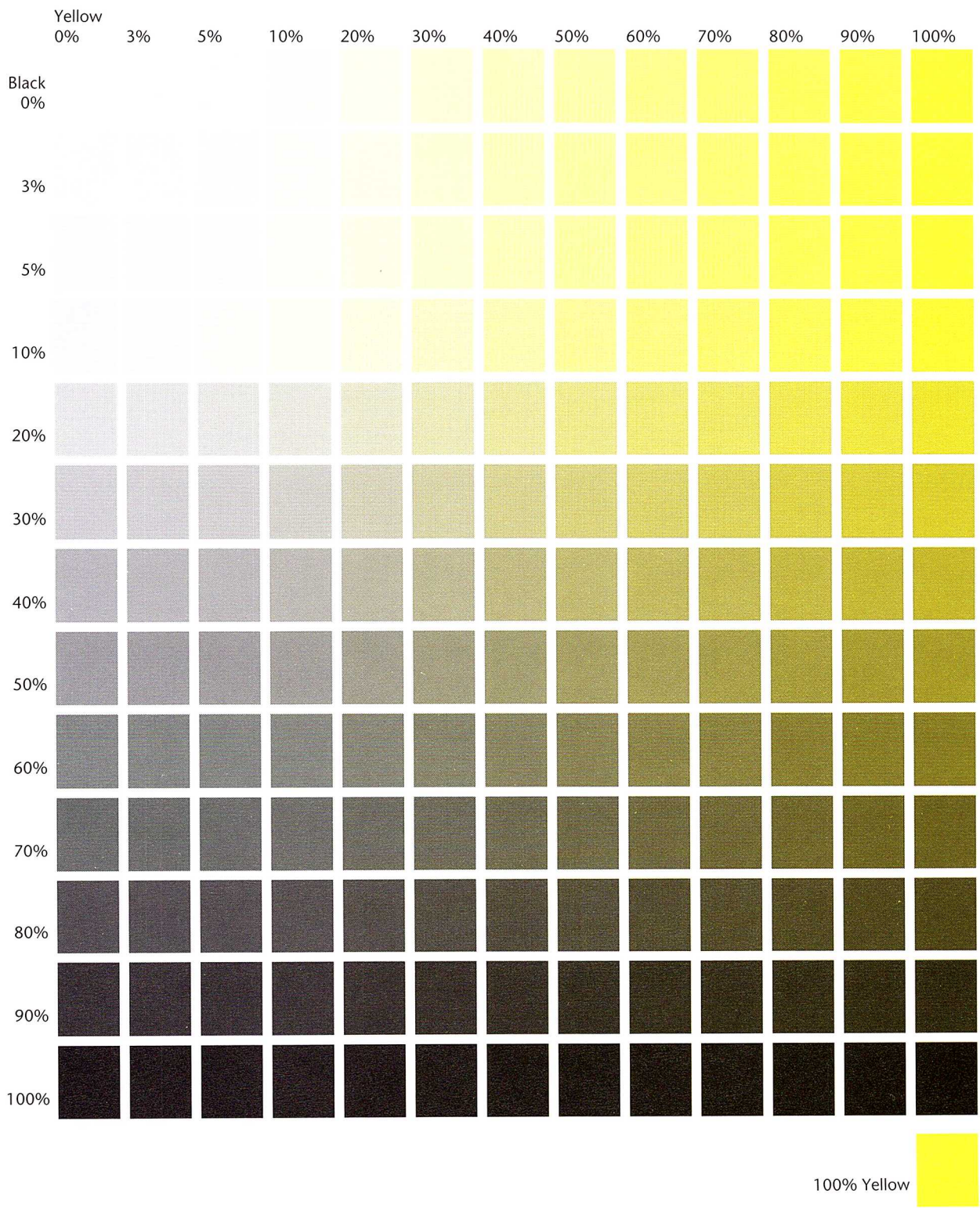

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